REPORT RESUMES

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OCCUPATIONS FOR YOU, PART ONE.

BY- DES ROCHES, DEAN L.

GEORGE WASHINGTON UNIV., WASHINGTON, D.C.

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DEVELOPED AS PART OF A CURRICULUM PROJECT DESCRIBED IN VT 004 454 TO HELP YOUNG PEOPLE LEARN BASIC PRINCIPLES AND CONCEPTS OF MECHANICS AND TECHNOLOGY, THIS BOOK WAS DESIGNED TO STIMULATE INTEREST AND ANSWER QUESTIONS ABOUT VOCATIONAL CHOICE, STIMULATE INTEREST IN READING, AND PROVIDE CONTENT TO RELATE TO ACADEMIC STUDY. THE MATERIALS DEVELOPED IN THE PROJECT WERE TESTED ON EIGHTH AND NINTH GRADERS IN SCHOOL SYSTEMS IN SEVERAL STATES. FOR EACH OF NINE OCCUPATIONS IN THE BUILDING TRADES, NINE OCCUPATIONS RELATED TO MECHANICAL AND ELECTRICAL REPAIR, AND 11 OTHER OCCUPATIONS RANGING FROM GASOLINE SERVICE STATION ATTENDANT TO PRINTERS, THERE IS INFORMATION ABOUT WHAT THEY DO, TRAINING AND QUALIFICATIONS, EARNINGS AND WORKING CONDITIONS, EMPLOYMENT OUTLOOK, AND WHERE TO GET FURTHER INFORMATION. THE APPENDIX CONTAINS A GLOSSARY, A TABLE OF HOURLY, WEEKLY, AND YEARLY WAGE EQUIVALENTS, AND A GRAPH OF AVERAGE EARNINGS IN THE OCCUPATIONS PRESENTED. THE BOOK IS ILLUSTRATED WITH PHOTOGRAPHS AND LINE DRAWINGS. OTHER RELATED DOCUMENTS ARE VT 004 454 THROUGH VT 004 471. (EM)

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Part One

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The George Washington University
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Occupations for You

Part One

THE GEORGE WASHINGTON UNIVERSITY
School of Education
Education Research Project
Washington, D.C.

December 1965

This is one of two experimental booklets intended to help young people learn many of the things they need to know in order to make wise vocational choices. It is part of a series of booklets intended to help young people learn basic principles and concepts of mechanics and technology.

It is hoped that this booklet will be useful to students to stimulate interest and answer questions about occupations, to stimulate interest in reading, and relate its content to their academic work.

The booklet is part of the curriculum and materials for teaching basic vocational talents being prepared by The George Washington University Education Research Project under Contract No. OE-5-85-023 with the United States Office of Education.

This booklet was prepared under the direction of Dean L. Des Roches, Assistant Research Professor of Education. Mrs. Ann Riordan, Research Assistant, and Miss Jane Schroeder assisted in the preparation. Raymond H. Fernandez, Junior Research Assistant, prepared the art and other graphic work. C. A. Neyman, Jr., and Mrs. Louise Umstott provided editorial assistance.

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The George Washington University
1166 - 19th Street, N. W.
Washington, D. C. 20036

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INTRODUCTION

Most of the workers in this country are employed in fifty broad occupational groups. This book describes some jobs within these groups for you to consider. Detailed information about each job is given.

The following are some of the questions you should ask yourself before you make up your mind about what jobs you should consider:

. . . Do you like working with a group or would you rather work by yourself?

. . . Do you enjoy working outside or would you rather work inside?

. . . Do you enjoy working with your hands?

. . . Do you enjoy lifting and other heavy work?

. . . What are your favorite subjects in school?

. . . Do you enjoy reading by yourself or would you rather tinker with a motor?

There may be other questions you can think of to ask yourself about your interests and activities. When you have answered these questions, you will be on your way to choosing your occupation.

There is no one right job for anybody. You will probably find that you have the ability to learn and do many kinds of jobs, and that there are several which you should look into before you make up your mind. The best way to do this is to ask yourself the following questions about the jobs you read or hear about. These questions will help you to compare your own interests and abilities with the requirements of the jobs.

1. Do I like that kind of work?

   For example, if you are considering the job of a delivery truckdriver, you should enjoy driving a car and working with other people.

2. Have I the ability to do that job?

   If you are considering being a delivery truckdriver, for example, you should be able to handle a car in city traffic, be able to drive safely, and find your way around the city.

3. What training will I need for this position?

   Is this a job that does not require much training, a job where training will be available on the job, a job that has an apprenticeship program, or a job where more education beyond high school will be necessary?

4. How much money can I expect to earn at this job? Will I receive regular raises as I become more skillful? Will this job be a training opportunity for a higher paying job?

To answer these questions, you will need to have some information about the occupations. This book is to help you choose the best occupation for you.

This book includes important information about many jobs. The write-up on each job describes:

1. What They Do - This section describes what the worker does on the job and the tools he uses.

2. Training and Requirements - This section describes the kind of training that is necessary to begin the job and what kind of training may be necessary to advance. It also describes any physical requirements of the job, such as great strength or keen eyesight.

3. Earnings and Working Conditions - The earnings set down are as up-to-date as possible. In most cases the amounts are average wages. This means that the starting wages will be lower than the amount stated. As you become more experienced and skilled at the job, you

may earn more than the amount shown. Also, wages will be different in different parts of the country. The U.S. Employment Service Office in your area and perhaps your school counselor can give you more definite information about this.

The section on working conditions will give you some information about where you will be working, such as inside or outside, in a large, busy place or a small, noisy shop. This section also tells you about the number of hours worked, and how much heavy work is involved.

4. Employment Outlook - Is this an occupation that is growing? How many openings will there be in the future? What will cause the demand for this job to grow or not?

5. Where to Get Further Information - None of these briefs will answer all of your questions. There will be some jobs about which you will want more information. This section suggests people to see, places to visit and where to write for more information.

In the top right-hand corner of each brief you will find a quick reference to each occupation. This material will help you to eliminate those jobs that do not interest you at all, or find those jobs that you wish to know more about. The material is shaded so that you can find it quickly, and gives a thumb-nail sketch of each job, including pay, type of work, education needed and training requirements.

The information in this book should be helpful to you in deciding how well you might like working at each kind of job. Job satisfaction will be as important to you as salary in the long run. How well you like your job will also help determine how successful you will be in it.

This book also contains appendices, or extra information, which you may find useful:

Appendix A - Glossary. As you read this book, there will be words that you may not understand, or old words used in a new way. The glossary defines many of these words for you.

Appendix B - A chart which will help you to figure weekly and yearly wages based on an hourly wage rate.

Appendix C - A chart which describes the average hourly earnings of the occupations in this book.

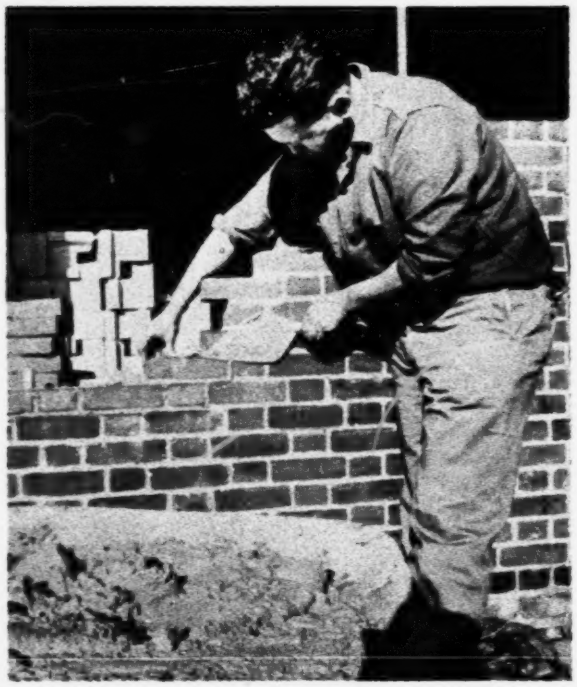
Before you read the discussions of the occupations in this book, you should understand the following terms:

1. On-The-Job Training. This is a training period in which a worker is taught a job while actually employed in that job.

2. Apprenticeship. In this training period, the apprentice has a written agreement with an employer for a specific number of years. He is guaranteed a certain wage, with regular increases, while he learns his trade. He receives on-the-job training and related classroom instruction. For information write to the Bureau of Apprenticeship and Training, U.S. Department of Labor, Washington, D.C., 20210, for the addresses of the nearest regional and state apprenticeship agencies; then write to them.

3. Journeyman. A journeyman is a qualified and skilled worker who has learned his trade. A worker prepares himself to become a journeyman by completing an apprenticeship, or otherwise obtaining the necessary skills.

NOTE: Beginning wages for almost all workers are considerably lower than the wages quoted in the shaded material at the beginning of each occupational description. The wages given are for trained and experienced workers.



BRICKLAYERS

Weekly Pay:	$175.00
Type of Work:	Outside; skilled
Education:	High school desirable
Training:	Apprenticeship

Bricklayers build with brick and mortar. What they build may be plain brick chimneys, ornamental screenwalls of glass blocks, and many other things.

WHAT THEY DO

Laying brick requires a steady hand and the use of several tools. A trowel is used to apply the mortar which holds the brick together. The rows of brick are kept level by the use of a tightly stretched cord called a gauge line. A mason's level is used to make sure that the bricks are lined up properly. A plumb line is used to make sure the bricks are straight up and down. A plumb line is a string with a weight on the end.

The hod carrier is the journeyman bricklayer's helper. He assists the bricklayer by carrying bricks, mixing mortar and setting up scaffolding.

TRAINING AND REQUIREMENTS

Since bricklaying is very exacting work done by hand, manual dexterity and a good eye for proportion are important. Bricklaying is also strenuous work, and therefore good physical condition is another requirement.

The best way to train for this highly skilled trade is to complete an apprenticeship program. Applicants are usually taken between the ages of 17 and 24 years, and a high school education is desirable.

The apprenticeship program usually lasts for three years and consists of on-the-job training plus classroom instruction. In addition to on-the-job training in building with brick, the apprentice receives classroom instruction in blueprint reading, welding, measurement and sketches. He also learns the relationship between bricklaying and other building trades.

Other beginning bricklayers learn by working for many years as hod carriers, observing or being taught by experienced bricklayers. Often, they may learn more about their work by taking trade school courses.

High school courses which would be helpful in preparing for the bricklaying trade would be mathematics, blueprint reading, mechanical drawing and shop.

EARNINGS AND WORKING CONDITIONS

The average hourly wage for journeymen bricklayers as of July, 1962, was $4.46 per hour. A beginning apprentice usually receives about half of the journeyman's wages. As his training progresses, he usually receives periodic raises, and near the end of his apprenticeship he may be earning nearly as much as the journeyman.

Working conditions for bricklayers vary since they may work in a number of different places and perform many different tasks. If a bricklayer is working at a large construction site, he may be working with other kinds of tradesmen, and will be outside most of the time. If he does remodeling or maintenance work, he may work alone, and he may work inside or outside.

No matter where he works, the bricklayer has a strenuous and exacting job. It involves heavy lifting, and standing and stooping for long periods of time.

EMPLOYMENT OUTLOOK

Because of increased construction activity, and the development of different kinds of material, the demand for bricklayers is expected to rise rapidly over the next 10 to 15 years. Therefore, there will be many jobs for qualified applicants.

WHERE TO GET FURTHER INFORMATION

School counselors and shop teachers would probably have information about this field. Visit construction sites where bricklayers are working. Ask them questions about their jobs. Talk to their employers and see what they look for in job qualifications and performance.

Since the bricklaying trade is highly unionized, a good place to get more information would be:

Bricklayers, Masons & Plasterers International
Union of America
1815 15th Street, N.W.
Washington, D. C. 20005

Other places to write for information are:

Associated General Contractors of America, Inc.
1957 E Street, N.W.
Washington, D. C. 20006

Structural Clay Products Institute
1520 18th Street, N.W.
Washington, D. C. 20036

CARPENTERS

Weekly Pay:	$155.00
Type of Work:	Inside and outside; skilled
Education:	High school desirable
Training:	Apprenticeship; on-the-job

Carpentry has always been an important trade. Today, the carpenter's work is much broader than just building houses. Carpenters are used in almost every kind of construction work.

WHAT THEY DO

Carpenters build outside wooden frameworks of buildings, including subflooring, partitions, floor joists and rafters. When the framework of the building is finished, they work inside installing molding, wood paneling, cabinets, window sashes, doors and hardware, as well as building stairs and laying floors. Carpenters also set up the scaffolding and temporary buildings at the construction site.

Carpenters install heavy timbers used in the building of docks and railroad trestles. They work in shipbuilding, mining, and in the production of displays.

Because of the wide scope of carpentry work, some carpenters do only one type of carpentry. For example, some carpenters specialize in installing wood panels on ceilings and walls; others specialize in laying hardwood floors or building stairs.

In his work, the carpenter uses handtools such as hammers, saws, chisels and planes. He also uses power tools such as portable power saws, drills and rivet guns.

TRAINING AND REQUIREMENTS

An apprenticeship program of about four years is recommended as the best way to prepare for employment as a carpenter. Apprentices are accepted as early as age 17. Most employers want young men who have a high school education or its equivalent. Good health is important, along with a good sense of balance, lack of fear of heights, and manual dexterity. The ability to solve arithmetic problems quickly and accurately is very important.

A carpentry apprenticeship program usually consists of four years of on-the-job training, plus related classroom instruction. During this time the apprentice learns:

1. Elementary structural design.
2. Common systems of frame and form construction.
3. The use, care and handling of tools, machines and equipment used.
4. How to build forms for holding concrete.
5. Framing.
6. Outside and inside finishing work.
7. How to fit hardware.
8. How to hang doors.
9. How to set windows.
10. How to lay out work.

Related classroom instruction includes blueprint reading, drafting, mathematics that applies to the trade, and the use of woodworking machines. The apprentice also learns about other building trades so that he can relate their jobs to his and better understand the total construction picture.

High school subjects such as mathematics, drafting, woodworking and general science are courses that would be helpful in the carpentry trade.

EARNINGS AND WORKING CONDITIONS

At the beginning of the apprenticeship, apprentice carpenters usually earn about 50% of the regular journeyman's wage. Increases come each six months at 5%, and at the end of training, the apprentice will be earning between 85% and 90% of the journeyman's rate of pay.

Most carpenters are members of the United Brotherhood of Carpenters and Joiners of America. Union minimum hourly wages for carpenters as of July, 1962, averaged $4.07, compared with an average of $4.15 per hour for all building trades. However, wages vary by locality. Carpenters in Charlotte, North Carolina, earned $2.50 per hour while those in New York City earned $5.05 per hour.

The work of carpenters is hard and active. Great strength is not required, but carpenters do much stooping, kneeling, and climbing, and should be in good health. They sometimes risk injury when working on high buildings, from contact with sharp or rough materials, and from the use of sharp tools and power equipment. The work is mostly outside.

EMPLOYMENT OUTLOOK

More workers are employed in carpentry than in any of the other building trades. An increase in building construction is expected. There will be many job openings for young men who want to be carpenters.

Young men who have completed apprenticeship programs will have the best job prospects. Their apprenticeship has given them thorough, all-round training. They also have better opportunities for advancement than men who can do only the simpler and more routine types of carpentry.

Carpenters may advance to positions as carpenter foremen, or they may become general construction foremen. Because skilled carpenters are familiar with the whole construction picture, they usually have better opportunities than most building journeymen to become general construction foremen. Some carpenters own their businesses and become contractors for buildings.

WHERE TO GET FURTHER INFORMATION

Information about carpentry may be obtained by talking with contractors in your community, the local branch of the United Brotherhood of Carpenters and Joiners of America, a local joint union-management apprenticeship committee, or the local office of the Bureau of Apprenticeship and Training. You might also speak with your school wood-shop teacher and your school counselor.

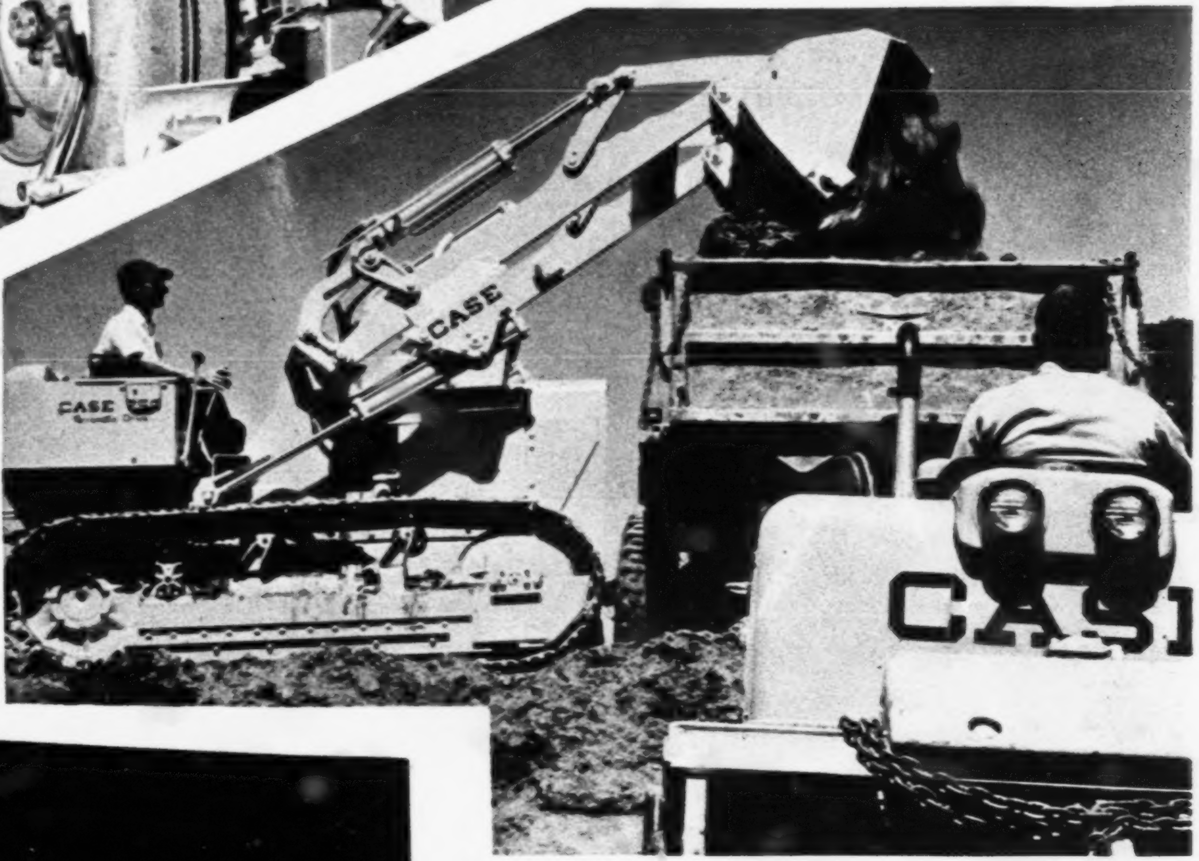
Publications and general information on apprenticeship programs are available from:

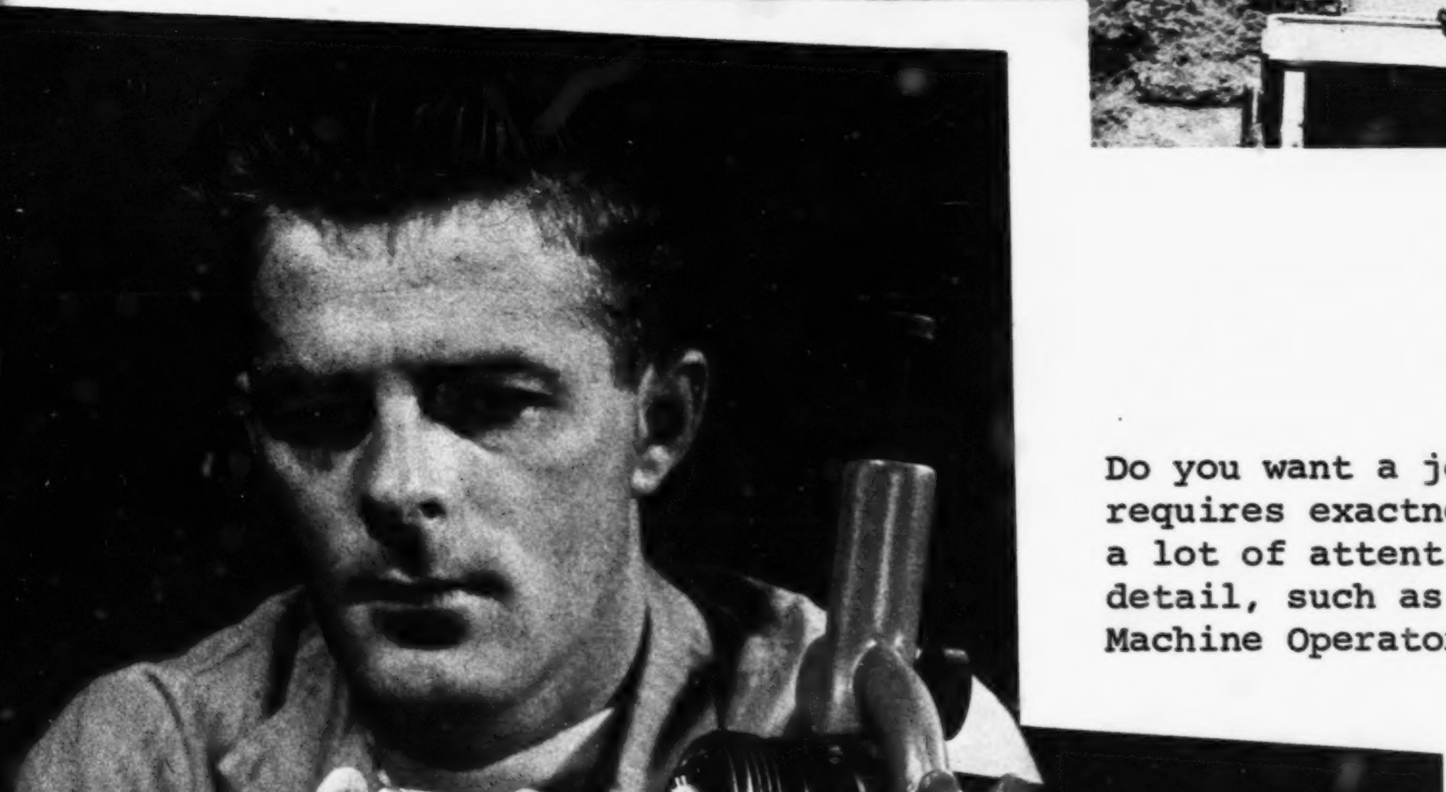
Associated General Contractors of America, Inc.
1957 E Street, N.W.
Washington, D. C. 20006

United Brotherhood of Carpenters and Joiners
of America
101 Constitution Avenue, N.W.
Washington, D. C. 20001

Do you like to work with tools and machines as the Automobile Mechanic does?

Do you want to work outside as the Heavy Equipment Operator does?





Do you want a job that requires exactness and a lot of attention to detail, such as the Machine Operator?

ELECTRICIANS

Weekly Pay:	$130.00
Type of Work:	Inside or outside; skilled
Education:	High school desirable
Training:	Apprenticeship; on-the-job

Everything from light bulbs to huge industrial machines uses electricity. The men who service and install electrical systems keep our industries going and provide light for our homes, hospitals and stores.

Electricians can be divided into two groups: construction electricians, who install new electrical systems, and maintenance electricians, who service existing systems. In this brief we will describe only maintenance electricians.

WHAT THEY DO

Maintenance electricians inspect and repair electrical equipment. They also change old electrical systems to bring them up-to-date. They work on motors, generators, transformers, circuit breakers, control panels and lighting equipment.

In an average day they will be doing many things. They might repair or replace wiring, fuses, transformers, coils or switches. They may connect wires by splicing or using mechanical connectors. They may also measure, cut, bend and thread conduits through which wires run. They may also adjust equipment controls.

Their tools are pliers, screwdrivers, drills, reamers, and conduit bending and threading equipment. They also use test lamps, ammeters, voltmeters and oscilloscopes to test electrical equipment.

TRAINING AND REQUIREMENTS

The best way to train for this job is through a formal apprenticeship program which gives the apprentice a chance to work for four years with a skilled electrician. On the job, the apprentice will be taught to install light and power equipment, controls and circuits. Welding, brazing and burning will also be part of his training.

Some men gain their skills and knowledge for this field through informal training in a number of jobs in their trade. By moving from job to job, the worker will eventually acquire the necessary skills.

Those interested in this field would be wise to include mathematics, science, general shop, mechanical drawing, drafting, basic electricity and electronics as courses in high school.

The electrician needs manual dexterity. He should also have an aptitude for mathematics, and the ability to see a job through accurately.

EARNINGS AND WORKING CONDITIONS

The electrician's job does not require great strength. However, he will be climbing and balancing, stooping and kneeling, and using his arms and hands all the time. Although most of his work will be done inside, he might sometimes work outside.

The earnings of maintenance electricians are about the same as other skilled workers. A survey made in July, 1964, showed that the average hourly wage of maintenance electricians was $3.27 per hour.

Apprentice wages begin at about 60% of the journeyman pay rate and increase until 90% of the journeyman rate is reached in the final part of the apprenticeship.

Safety is very important to the electrician. Because he is constantly working around high voltage wires and machines, he must be cautious and alert. Careless work might be dangerous to himself and those using the equipment. Safety principles taught to all apprentices have reduced the number of accidents.

EMPLOYMENT OUTLOOK

The number of jobs for maintenance electricians is expected to increase because of the trend toward greater use of electrical and electronic equipment. Many new job opportunities will occur in the primary metal, fabricated metal, machinery and chemical industries.

WHERE TO GET FURTHER INFORMATION

If interested in this trade, contact the following:

The National Joint Apprenticeship and Training
Committee for the Electrical Industry
1200 18th Street, N.W.
Washington, D. C. 20036

Be sure to contact contractors and other employers who might hire electricians. Talk with both the employer and the employees. See what they think about the job. Your school counselor and shop teachers might be able to offer information and publications.

HEAVY EQUIPMENT OPERATORS
(Construction Machinery Operators)

Weekly Pay:	$180.00
Type of Work:	Skilled; outside
Education:	High school desirable
Training:	Apprenticeship

Power shovels, derricks, hoists, concrete mixers, paving machines and bulldozers are all examples of the machinery handled by heavy equipment operators. This job requires more skill than many construction jobs, but the pay is excellent and the work is usually interesting.

WHAT THEY DO

Heavy equipment operators operate the machinery usually seen at construction sites. They may be in charge of a small machine, such as a cement mixer or a pile driver. They also operate bulldozers, earth movers or graders. Highly skilled heavy equipment operators operate the huge cranes used in building tall buildings.

TRAINING AND REQUIREMENTS

Operating heavy equipment takes a good deal of skill and natural ability. Those who consider this field must have good eye-hand-foot coordination, and must also be good judges of size and distance. A small error in judgment can cause serious accidents. A heavy equipment operator should also be strong, since many of the machines he operates are difficult to handle.

Two kinds of training programs are available for heavy equipment operators. Both are open to young men who do not finish high school, but most employers would rather hire high school graduates. The first way to train is to become an oiler for a heavy equipment company. The oiler is an assistant to the heavy equipment operator. He cleans the machinery, and keeps it in good working order and repair.

If the oiler performs well and shows initiative, he may be given instruction on the operation of the simple machines like pile drivers and borers, and later, of the difficult equipment.

The popular method of training is a three-year apprenticeship program. There are three types of apprenticeship programs. One is for operators of universal equipment (cranes, shovels), another is for the special equipment used in grading and paving roads, and the third is for training the specialist in plant equipment. Apprentices get a good deal of on-the-job training beginning with the care of equipment, safety methods, and basic service. They then learn to make repairs on many kinds of equipment.

Apprentices also learn to weld and to use cutting equipment. They learn about the many types of oils and greases that are necessary to take care of the machinery. Apprentices must be able to read job plans and to follow operators' instructions before they finish the program.

EARNINGS AND WORKING CONDITIONS

Heavy equipment operators are paid better than most construction workers. The more difficult a machine is to operate, the higher the pay.

The minimum wage in Charlotte, North Carolina, in 1962, was $3.20 an hour. In Newark, New Jersey, the minimum was $5.70. Successful apprentices advance to journeyman's pay in three years. It may take many years to learn the operation of the most difficult machines.

Construction machinery operators usually work outside. Much of the work is on highways or in new housing developments which are away from cities or towns. Some heavy equipment operator's jobs are seasonal, especially in the North, since the work is mostly outside. Some highly skilled operators are hired on a regular basis. These men are paid even when they do not work.

EMPLOYMENT OUTLOOK

There are about 225,000 heavy equipment operators in the United States. More are needed each year to replace the older men and operate new machines. The increases in new houses and roads mean more jobs for construction machinery operators.

WHERE TO GET FURTHER INFORMATION

For more information about this field, write to:

The International Union of Operating Engineers
1125 17th Street, N.W.
Washington, D. C. 20036

Associated General Contractors of America, Inc.
1957 E Street, N.W.
Washington, D. C. 20006

Local contractors can also provide information about job possibilities in your area. Contact your school counselor or shop teacher for other information.

PAINTERS AND PAPERHANGERS

Weekly Pay:	$120.00
Type of Work:	Inside or outside; skilled
Education:	High school desirable
Training:	Apprenticeship or on-the-job

For hundreds of years people have tried to protect from wear and improve the appearance of the homes in which they live and the buildings in which they work. Two materials used most often are paint and wallpaper.

WHAT THEY DO

Painters and paperhangers sometimes do the same kind of work but use different materials. They both prepare the surfaces upon which they work. The painter then applies paint. The paperhanger applies wallpaper.

The painter's most important tool is a paintbrush. But he must be able to mix paints and match colors, and know what paint is made from and where it can best be used. His sense of color should be very good as he is often asked to recommend the colors to be used. He must know how long a given type of paint will last, how it can best be applied, and on what surfaces it will do its best job.

Today's painter also uses spray guns and rollers. These tools are often used when a paintbrush would not work well. These tools are used when he is working on a surface of brick, or is painting radiators, trellises or large buildings.

Paperhangers apply many materials other than paper. These may be vinyl, fabric or other materials. On a wall which has not been painted or papered before, the paperhanger applies sizing, which is a prepared material that makes the plaster less porous and makes the paper stick longer. Frequently, he has to soak off old wallpaper or do minor plaster patching to make a smooth surface. He also removes grease or dirt that might cause the paper to bulge or not hold properly.

When the surface has been prepared, he mixes his paste, cuts and matches the paper, then applies the paste. Next, he puts the paper on the surface, making sure he has removed all air bubbles underneath.

TRAINING AND REQUIREMENTS

Like most skilled building trades, both painting and paperhanging have apprenticeship training programs. Most training authorities, contractors, and unions recommend this method of learning this trade. It is usually a three-year program of on-the-job training which consists of about 6,000 hours and, in addition, related classroom instruction. Although apprenticeship is the recommended procedure for entrance, many men learn the trade informally by working as helpers or handymen. Workers without formal apprentice training have gained entrance into the trade as journeymen more easily in these crafts than in most other building trades.

Apprentices are usually between the ages of 16 and 25, in good health and physical condition, can work well with their hands, and have a good sense of color. A high school education is preferred. It is important that the applicant not be allergic to paints, pastes or other materials used.

Apprentices are trained to use, care for and handle safely the tools, machines, equipment and materials used. They are also instructed by watching and helping others in sizing, sandpapering and puttying walls. Matching and mixing paints, applying various types of interior and exterior materials, and erecting scaffolding will be demonstrated and taught.

Apprentices will receive classroom instruction in color harmony, paint chemistry, the mixing and matching of paint, and estimating costs. They also learn about the work performed by members of the other building trades.

EARNINGS AND WORKING CONDITIONS

An apprentice's pay starts at about 50% of a journeyman's hourly wage and increases periodically during apprenticeship until the journeyman rate of pay is reached.

Painters and paperhangers average $3.00 an hour. This rate will vary according to location and size of the community.

There are many possibilities for advancement. Painters and paperhangers may become foremen, estimators for painting and decorating contractors, superintendents on large contract painting jobs, or they may establish their own businesses as contractors.

Most building trade jobs are unionized. Most painters and paperhangers are members of the Brotherhood of Painters, Decorators and Paperhangers of America.

Working conditions are often strenuous. Standing, stooping, climbing and bending are part of the job. Working at heights with ladders and scaffolding requires good reflexes, a steady hand and lack of fear of heights. Injury from falls has been lower than for contract construction as a whole, but higher than for all manufacturing industries. Strong arms and shoulders are required, since much of the time painters and paperhangers work with their arms above their heads.

Painting is a seasonal occupation and much employment is lost because of bad weather. However, many contractors now use a temporary enclosure for building tradesmen whose work might be affected by bad weather.

EMPLOYMENT OUTLOOK

There were 350,000 painters and 9,000 paperhangers in early 1963. Most job openings will come from those who retire or go into other businesses.

Technological developments have limited and will continue to limit the jobs open to painters. The amount of skill required to enter this type of employment will also be affected. New types of paints, spray painting and factory-finished products require less time.

Employment for paperhangers is likely to decline as paint, wood paneling, and other products are more popular and seem to last longer. The art of paperhanging has not been affected much by technology, but the use of wallpapers has been greatly reduced.

WHERE TO GET FURTHER INFORMATION

If more information is desired, write to:

Brotherhood of Painters, Decorators and
Paperhangers of America
217-219 North Sixth Street
Lafayette, Indiana 47901

Talk to painting and decorating contractors in your area. A local union, a local joint union-management apprenticeship committee, or the local office of the Bureau of Apprenticeship and Training would be other places to contact. Inquire at the State Employment Service and ask your school counselor for more information about these trades.

PLUMBERS AND PIPEFITTERS

Weekly Pay:	$170.00
Type of Work:	Inside or outside; skilled
Education:	High school desirable
Training:	Apprenticeship

Plumbing and pipefitting are two of the oldest skilled trades. These trades have changed because of the development of new methods and materials. Today, there are specialists in these fields. A specialist is a person who does one kind of plumbing or pipefitting job. Steamfitters, sprinkler fitters and gas main fitters are some of the specialists.

WHAT THEY DO

Plumbing and pipefitting are sometimes thought of as a single occupation. However, journeymen in these trades can specialize in one craft or the other. Plumbers install water, gas and waste disposal systems in homes, schools, factories and office buildings. Pipefitters install pipes which carry water, gas, steam and chemical liquids into factories, and missile launching and testing sites. For example, pipefitters might install ammonia-carrying pipelines used in refrigeration plants.

Plumbers and pipefitters use wrenches, reamers, drills, braces and bits, hammers, chisels, saws and other handtools. Power machines are used to cut, bend, and thread various types of pipe. Gas and electric torches, and welding, soldering and brazing equipment are used in their work.

Plumbers and pipefitters are divided into three groups. The highest level is the master plumber who has passed a local or state examination and has had much experience in his field. He is usually a contractor who owns his own business and hires and supervises journeymen plumbers.

The journeyman plumber carries a union card and has successfully completed an apprenticeship program. He is also certified as a journeyman plumber by the local apprenticeship council. The beginning worker in plumbing is the apprentice, who is just learning the trade.

TRAINING AND REQUIREMENTS

The national joint labor-management apprenticeship committees recommend a five-year apprenticeship program as the best way of training for these trades. A large number of plumbers and pipefitters, however, have not had this training. They have gained their skills by working as helpers. Many of these persons have gone to trade and vocational schools or taken correspondence courses.

Apprentices are usually required to be between 16 and 25 years of age, to be in good physical condition, and to be able to work with their hands. Applicants are often required to take mechanical aptitude tests.

A high school education or its equivalent with courses in mathematics, drafting, mechanical drawing, metal and wood shop, welding, and some physics and chemistry would be a good background to start with. Since much of this work is done by following the plans laid out on blueprints by others, a knowledge of blueprint reading is important.

At the end of their training, plumbing and pipefitting apprentices usually have 10,000 hours of on-the-job training plus at least 720 hours of related classroom instruction. On the job, they learn how to use and care for the tools, machines and materials used in the trade. They are taught welding and soldering techniques, general repair work, the use of ladders and scaffolding, and the proper use of plastic and glass piping.

Plumbing apprentices are trained in the installation of waste, vent, and domestic hot and cold water pipes; piping in septic tanks, cesspools and sewers; and in the testing of plumbing installations.

The pipefitters' apprenticeship training is a little different. It includes training to install radiators, pumps, boilers, stokers, oil burners and gas furnaces. Instruction and practice are received on hot water, steam panel and radiant-heating systems. Installation and repair of air-conditioning and powerplant piping systems, pneumatic control systems and instrumentation are also taught.

Related classroom instruction for both plumbers and pipefitters includes drafting, blueprint reading, shop mathematics, simple physics and chemistry, and local building codes and regulations. Plumbers and pipefitters also learn about other building trades.

In most areas today a journeyman's license is required to work as a plumber. An examination that demonstrates knowledge of the local building codes and general knowledge of the trade must be passed to obtain this license.

EARNINGS AND WORKING CONDITIONS

Plumbers work indoors and outdoors. Wherever they work, the job involves much heavy lifting and hard work. They may sometimes work at great heights, and often work in small, damp, cramped places, and must crawl, stoop, kneel or work on their backs.

> Among the skilled building trades, hourly wages for plumbers and pipefitters are among the highest. As of July, 1962, union minimum wages for plumbers and pipefitters averaged $4.30 an hour. All journeymen in the building trades at this time averaged $4.15 an hour. Wages vary in different parts of the country.

Apprentices usually start at 50% of the journeyman's hourly pay rate. They are given 5% raises usually every six months until they are receiving 95% of the journeyman's pay rate at the end of their apprenticeship training.

Almost all industry workers are employed for a 40-hour week, five days a week or less. Work beyond this time gives overtime pay. Annual vacations and health and accident insurance are usually included. A large portion are members of the United Association of Journeymen and Apprentices of the Plumbing and Pipe Fitting Industry of the United States and Canada.

EMPLOYMENT OUTLOOK

More than 300,000 plumbers and pipefitters were employed in early 1963. Job openings are frequent because of the large size of this group. With the trend toward two bathrooms in each home and the use of more and more appliances, plumbing and heating work is expected to become even more important in many types of construction. Industries are automating their production and this requires the use of piping. The activities related to atomic energy, refrigeration, air conditioning, and various chemical industries point to greater use of plumbers and pipefitters.

WHERE TO GET FURTHER INFORMATION

General information about this trade may be obtained by writing to:

National Association of Plumbing-Heating-Cooling
 Contractors
1016 20th Street, N.W.
Washington, D. C. 20036

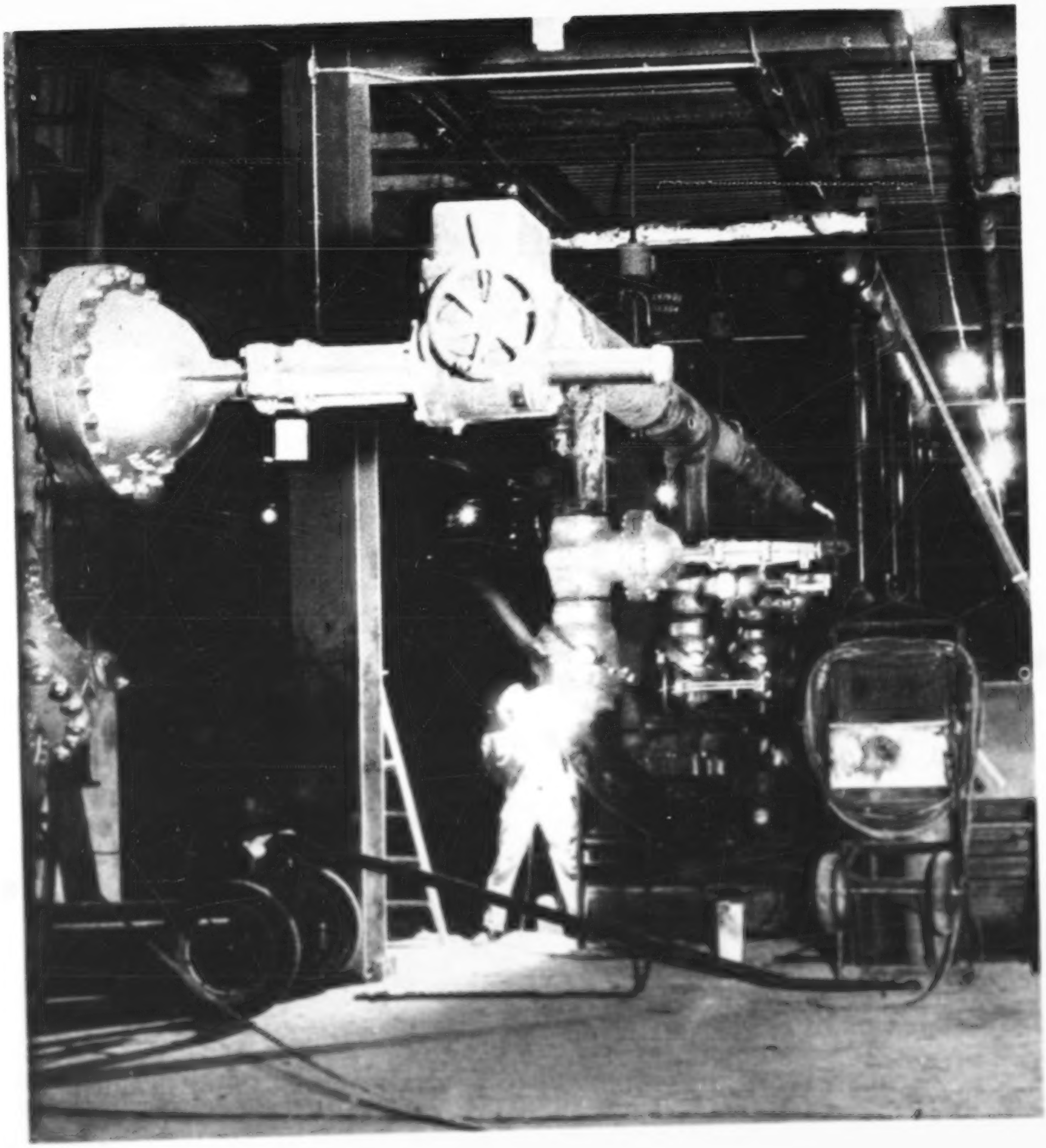
United Association of Journeymen and Apprentices
 of the Plumbing and Pipe Fitting Industry of
 the United States and Canada
901 Massachusetts Avenue, N.W.
Washington, D. C. 20001

Visit both large and small contractors and plumbing businesses and talk with the employers and their employees.

A local union, a local joint union-management apprenticeship committee, or the local office of the Bureau of Apprenticeship and Training of the U.S. Department of Labor are other possible sources of information.

Talk with your school shop teachers and counselors, who can help you to decide whether or not you should consider this field.

Look into some of the high school, vocational school and trade school training programs in this field.



SHEET-METAL WORKERS

Weekly Pay:	$130.00
Type of Work:	Inside or out; skilled
Education:	High school desirable
Training:	Apprenticeship

For many thousands of years man has used all kinds of metal products. Metal workers long ago made jewelry, ornaments, armor and weapons. With hammer and anvil they pounded the heated metals into many forms.

Today, sheet-metal workers take the metal shapes furnished by factories, such as furnace pipes, air ducts, rain gutters and chimney flashing, and install them in homes and buildings of all kinds.

WHAT THEY DO

Sheet-metal workers might work for a contractor; a manufacturer of heating, refrigeration or air-conditioning equipment; for a government agency or a large business that does its own repair and maintenance work; for a small shop that makes and installs custom-made kitchens;

for a railroad, aircraft or shipbuilding company; or for a manufacturer of blowers, exhausts, electrical generating and distributing equipment, food-processing machinery, steam engines or turbines.

To install heating or air-conditioning ductwork, the sheet-metal worker lays out and plans the job, determines the size and type of metal to be used, and then installs the ducts. He might work with prefabricated products made at a sheet-metal shop, or he might form the metal himself by using such tools as hammers, anvils and various cutting devices. He also will have to connect various pieces of ductwork by welding, bolting, riveting, soldering or cementing.

Some journeymen specialize in shopwork or installation work. However, in this skilled trade, it is important to know all aspects of the work.

TRAINING AND REQUIREMENTS

For entrance into this skilled trade, completion of a four-year apprenticeship program is recommended. Some sheet-metal workers have received informal training by working for many years as helpers or handymen. As they help, they watch and learn. Others have gained knowledge of this trade by taking various vocational school, trade school and correspondence courses.

Apprenticeship applicants should be between 16 and 23 years of age, have a high school education or its equivalent, be in good physical condition, and be able to work with their hands.

The apprentice program usually lasts four years, and involves on-the-job training and related classroom instruction. On the job the apprentice will learn to use, care for and handle safely the many tools, machines and materials used in the trade. He will learn to solder and work with other means of fastening sheet metal. Air-conditioning, heating, ventilating, roofing, gutters and downspouts, and architectural sheet-metal work are all part of the instruction.

The related classroom work involves drafting, blueprint reading and mathematics used in this field. The apprentice will learn how this trade relates to other building trades.

EARNINGS AND WORKING CONDITIONS

Apprentices begin at about 50% of the journeyman pay rate and increase until 90% of the journeyman rate is reached in the final part of the apprenticeship period.

Union hourly wage rates averaged $3.24 as of July, 1964. Wages vary by location, size of the industry or contractor, and the place of employment.

Working conditions for this trade vary. Sheet-metal workers may work indoors or outdoors. They may be at a construction site working outdoors, or indoors fabricating or laying out their work. They may work high above the ground installing gutters or doing roof work. They may also work in cramped positions on their backs or work with arms and hands above their heads.

Sheet-metal workers run the risk of getting cut or burned from the materials and tools they work with. Many wear a uniform, while others wear regular work clothes.

EMPLOYMENT OUTLOOK

There is a smaller demand for sheet-metal workers than for other workers in the building trades, such as carpenters and bricklayers. However, as the construction business continues to grow, the need for sheet-metal workers will grow in proportion to the other building trades.

WHERE TO GET FURTHER INFORMATION

Those who wish information about this skilled trade should try to locate sheet-metal contractors or other businesses that employ sheet-metal workers.

A local branch of the Sheet-Metal Workers' International Association or local joint union-management apprenticeship committee would also have information.

The local office of the Bureau of Apprenticeship and Training, which is part of the U.S. Department of Labor, has much information about this work. Don't forget the local office of the State Employment Service as a source of information. They also give aptitude and ability tests to see if the individual has the necessary skills for this work.

General information may be obtained from your school counselor or shop teacher. Other information may be obtained by writing to:

Sheet-Metal and Air-Conditioning Contractors
National Association, Inc.
107 Center Street
Elgin, Illinois 60120

Sheet-Metal Workers' International Association
1000 Connecticut Avenue, N.W.
Washington, D.C. 20036

AIR-CONDITIONING AND REFRIGERATION MECHANICS

Weekly Pay:	$120.00
Type of Work:	Semiskilled; inside or outside
Education:	High school desirable
Training:	On-the-job

Keeping people cool during the summer in America has become a major occupation. Most offices and stores, as well as many homes, have at least one air-conditioning unit. New office buildings include central air-conditioning units in their basic plans. It is no longer unusual for a new house to be centrally air conditioned, just as it is centrally heated.

WHAT THEY DO

The air-conditioning and refrigeration mechanic installs, maintains, repairs and replaces equipment used for cooling purposes. This equipment may be a portable unit in a window or a large unit permanently installed.

There are special uses for air conditioning. Cooling and freezing on railroad cars are important for the transportation of foods that might spoil. Trucks are sometimes air-conditioned, not only to preserve food, but to prevent heat damage to perishable materials. A mechanic might want to combine this trade and a desire for travel by becoming a marine air-conditioning specialist.

Air-conditioning and refrigeration mechanics perform many different activities. They install the wiring for cooling units, set the pipes, and often must install the duct work which is part of the equipment. They must be able to put together and adjust the cooling unit, or condenser, and add the necessary cooling liquid or gas. They must know something about electrical installation, plumbing, sheet metal work, lubrication and machinery operation.

TRAINING AND REQUIREMENTS

A high school diploma is not always required for this field, but most employers prefer those who have taken high school mathematics, physics and blueprint reading. The work requires an interest in mechanical activities and a familiarity with many different kinds of tools and types of machinery. The ability to understand and work with electricity is necessary for this trade. Air-conditioning mechanics must be in good physical condition, because they often have to lift heavy equipment.

A beginner in this field usually starts as a helper in an air-conditioning shop. The helper learns how to insulate air-conditioning lines, assists the mechanic with installing new equipment, and helps in repairing used equipment. He moves from simple to more difficult tasks. The advanced helper must know how to check the electrical circuits and replace or install parts such as pumps, motor bushings and gauges.

The mechanic's training begins with small air conditioners. When he has learned how to install and repair portable units, he advances to complicated ones. Only after much experience will the mechanic work on large units.

Anyone who wants to advance in this field should plan to take technical courses which would include work in mathematics, physics, electricity and mechanical drawing. Graduates of technical institutes find opportunities to advance to foreman positions and to specialize in planning and design.

EARNINGS AND WORKING CONDITIONS

Air-conditioning mechanics work in many places. They may install ducts and vents in large buildings, repair large equipment on rooftops, install units in windows, or maintain larger units in basements.

The pay rates for mechanics in this field depend on the location of the job and the type of equipment involved. Rates vary from $1.25 to $1.75 an hour for beginners. Top mechanics make between $3.00 and $3.50 per hour. Mechanics who become skilled in maintaining and repairing the very specialized equipment can earn more money than the average.

Air-conditioning mechanics usually work a lot of overtime in summer, but have frequent layoffs during the winter months. Sometimes they learn about heating equipment so they can work more during the winter.

EMPLOYMENT OUTLOOK

With more widespread use of air-conditioning, especially in cities and towns, employment opportunities for well-qualified mechanics are growing, and will continue to grow.

AIR-CONDITIONING
AND
REFRIGERATION MECHANICS

The majority of air-conditioning mechanics work for installation and repair companies. Sometimes large construction firms hire their own mechanics. Stores which sell cooling equipment also hire mechanics to service their products. Factories, shipping companies, railroads, food-handling companies and frozen food manufacturers are other possible employers.

WHERE TO GET FURTHER INFORMATION

More information about jobs in this field is available from state employment offices and local contractors. A visit to both of these places would help to answer questions you might have. It would also give you an opportunity to talk to those now working in this field.

Your school counselor might have information about training programs, jobs available and qualifications needed for this work.

AIRPLANE MECHANICS

Weekly Pay:	$140.00
Type of Work:	Inside or outside; skilled
Education:	High school desirable
Training:	Apprenticeship; license required

Air travel has been the fastest growing means of transportation in the country, both for travelers and cargo, since 1959. Airplanes require careful servicing and repair, and qualified mechanics are in demand.

WHAT THEY DO

The airplane mechanic's job is complicated. His responsibility is to inspect airplanes regularly and to make necessary adjustments and repairs in keeping with Federal Aviation Agency requirements. He might check the radar, fuel lines, controls, tires, brakes, landing gear, engine, and anything the pilot says is not working properly. When he finishes, the lead mechanic must give his okay that the plane is safe for flight.

TRAINING AND REQUIREMENTS

Mechanics in charge of the repair of any part of an airplane must be licensed by the Federal Aviation

Agency as an Airframe Mechanic, Power-Plant Mechanic, Airframe and Power-Plant Mechanic, or Repairman. In order to obtain these licenses, from eighteen months to three years must have been spent as a trainee, an apprentice, a helper to an experienced mechanic, or at a mechanics school approved by the F.A.A. Mechanics who hope to be licensed must pass a written and practical test given by the F.A.A.

To qualify for an apprenticeship program a man should be between the ages of 20 and 30 years and in good physical condition. A high school or trade school education which includes courses in algebra, physics, chemistry, electricity, auto mechanics, metal and wood shop, general science and machine shop would be the best background to have for this trade. Practical experience in mechanical work is also very helpful.

While still in high school, you can get working experience which will help you prepare for this field. A part-time job as an airport stock clerk, general ground serviceman or cargo handler will help you to become familiar with airplanes. Try building model airplanes to understand better their parts and structure.

The most important requirements for this trade are an interest in mechanical equipment, manual dexterity, and the ability to read and understand manuals, diagrams and blueprints.

EARNINGS AND WORKING CONDITIONS

A 40-hour work week is usual, although many airplane mechanics work overtime. Figures from the International Association of Machinists state that, as of 1965, airplane mechanics averaged $3.52 an hour. The work is done inside an airplane hangar whenever possible. Sometimes the mechanic might have to work outdoors.

Mechanics are generally required to furnish their own handtools. Machines and other expensive equipment are furnished by the employer.

EMPLOYMENT OUTLOOK

The number of airplane mechanics employed by the scheduled airlines is not expected to change much in the coming years. The number of airplane mechanics depends primarily on the size of the airline fleet. During recent years, a large number of piston engine planes have been replaced by a smaller number of jet planes. Because this trend is expected to continue, the size of the scheduled airline fleet will be about the same in 1970 as in 1962.

The rapid growth of general aviation flying will lead to an increase in the number of planes. Therefore, an increase is expected in the number of mechanics employed in firms providing general aviation services and the independent repair shops that repair many of these aircraft.

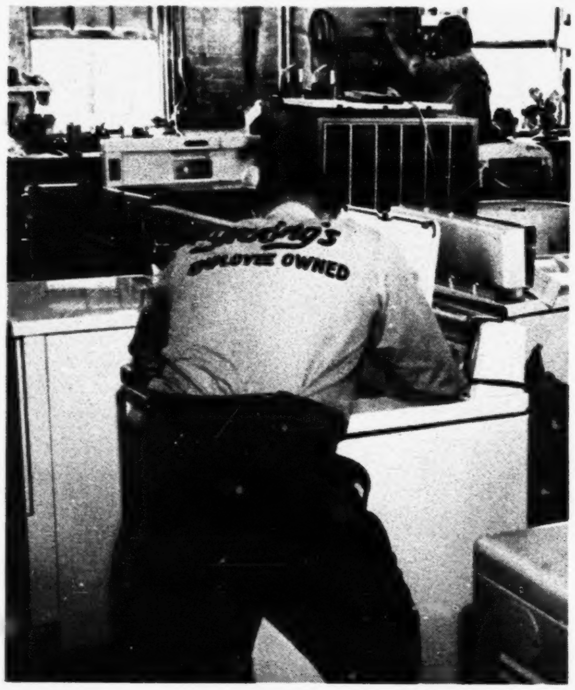
WHERE TO GET FURTHER INFORMATION

There are many ways to get information that might be helpful. The U.S. Civil Service Commission or the State Employment Service in your area could help. Visit airports and talk to mechanics about their work. Investigate the possibility of training with the Armed Forces.

Further information may be obtained by writing to:

Federal Aviation Agency
500 Independence Ave., S.W.
Washington, D. C. 20553

Air Transport Association of America
1000 Connecticut Avenue, N.W.
Washington, D. C. 20036



APPLIANCE SERVICEMEN

Weekly Pay:	$115.00
Type of Work:	Inside; skilled
Education:	High school desirable
Training:	On-the-job

In most homes today, there are many appliances: clothes washers and dryers, refrigerators, electric irons, fans and many others. When these appliances break down, they are repaired by appliance servicemen. Their jobs become more complicated and important every day. They require more training and preparation for their work than ever before.

WHAT THEY DO

When appliances are not working properly, appliance servicemen are called to the customer's home to find out what is wrong with the device. Sometimes the customer brings it to the shop for repair. Servicemen find out why the appliance is not operating correctly and then repair it. They check the appliance by starting it and listening to it, or sometimes look for common signs of trouble. Other times, special tools are used to find the trouble.

Appliance servicemen do many kinds of work. A serviceman might work in the shop for a few hours and then answer an emergency repair call. While out on call he might get a radio message to fix an appliance in the home of another customer. He might also bring an appliance back to the shop for repair.

TRAINING AND REQUIREMENTS

Depending on their qualifications, men in this occupation are usually hired as helpers and work for about three years to become fully trained and competent servicemen. Their training is on-the-job, through service manuals supplied by appliance manufacturers, attending courses at various centers, or reading books and manuals about appliance repair. Most servicemen periodically attend refresher courses to keep up with new types of appliances.

Employers look for employees who show an ability to work with their hands, can read blueprints and manuals, and have a high school, trade school or vocational school training which included such courses as general science, algebra, drafting, electricity, general shop and electronics. They must be able to read electrical wiring diagrams. They must also understand how to use instruments that measure electricity and then use these measurements to tell whether electrical parts are operating properly.

An important part of this job is the ability to work with and get along with customers. The serviceman must be able to explain to a customer exactly what is wrong and what repair is needed. Sometimes he may estimate what the cost of the repair will be, and suggest how to avoid the need for future repair. He must be tactful, courteous and honest. Servicemen are expected to dress neatly and clean up after the job is completed.

EARNINGS AND WORKING CONDITIONS

Working conditions are good. Shops are usually relatively quiet, well lighted and ventilated. The work is usually done at benches while seated on stools. However, when the serviceman leaves the shop, his working conditions can be just about anything. He may work in narrow spaces, uncomfortable positions and places that are dirty. The serviceman might be doing one thing one day and something different the next day. Many precautions are taken to keep the work safe. Inexperienced men are shown how to use their tools, what to touch and what not to touch, and how to take simple precautions against electric shock.

Trained servicemen usually work with very little supervision. This part of the job appeals to some men.

Appliance servicemen averaged about $115.00 per week in 1962. Their pay depends on the amount of experience they have and the type of repair done.

EMPLOYMENT OUTLOOK

There were about 165,000 appliance servicemen employed in 1963. Every community has them. Many of them work for independent service shops, and others find employment with appliance dealers, department stores and other firms that sell appliances. Many work for gas and electric utility companies. A few thousand are employed by appliance manufacturers who have service centers in most major cities. In recent years, many appliance servicemen are found working for firms that operate coin-operated washing and dry-cleaning machines.

Because the use of appliances has grown very fast, employment outlook is very good for servicemen. Qualified men will be able to find jobs. Those who are mechanically inclined will find many opportunities in the field of appliance repair.

WHERE TO GET FURTHER INFORMATION

Those who wish to get further information should get in touch with local repair shops, appliance dealers, gas and electric utility companies, and appliance manufacturers. Local vocational and trade schools offering courses in appliance repair should be investigated. Talk to your school counselor and shop teachers. When you visit or talk to others, be sure to get the employees' point of view also.

AUTOMOBILE MECHANICS

Weekly Pay:	$120.00
Type of Work:	Mostly inside; skilled
Education:	High school desirable
Training:	Apprenticeship; on-the-job

In the days of the Model T Ford, most owners repaired their own cars. It was said that all one needed was a screwdriver, a hammer and some wire to fix any Model T.

Today's cars are complex machines with automatic transmissions, complicated hydraulic and electrical systems, and other automatic features. They require the services of men who specialize in repairing them.

WHAT THEY DO

Except for some body and fender repairmen (see page 59), all automobile mechanics can do general repair work. However, many specialize in one particular part of automobile repair work. Auto mechanic specialists, except for body and fender repairmen, are divided into the following groups:

1. Motor overhaul and repair.
2. Transmission service and repair.
3. Brake service and repair.
4. Electrical repair.
5. Frame and axle repair.
6. Cooling system repair.

If an auto mechanic works in a small shop, he may do general repair work as well as his special job. If he works in a large shop, he may work only in his special field, such as repairing and adjusting automatic transmissions. If he works in a gas station, he may do only general repair and maintenance work.

> General automobile repair and maintenance work includes tuning the engine, replacing piston rings, aligning the front wheels, and adjusting or relining the brakes.

The auto mechanic uses many different tools and pieces of equipment. To make repairs and adjustments, he uses handtools, such as screwdrivers, wrenches and pliers. He also uses machines which help him find out why the automobile is not working properly, and assist him in making repairs. Examples of these machines are spark plug testers, engine analyzers and headlight aimers.

TRAINING AND REQUIREMENTS

Basic knowledge of how an automobile is constructed and operates is important for those entering this field. Applicants should like mechanical work and working with their hands. Courses in high school mathematics and general science will be helpful. General shop, auto shop, basic electricity and mechanical drawing are good courses to take. Many get practical experience by part-time or summer employment, while others get practical experience working on their own cars.

The beginner will probably start with on-the-job training as a helper, lubrication man, car washer or service station attendant. By working with experienced mechanics, he will gradually develop the necessary knowledge and skills. With this method, it usually takes three to four years to become a general mechanic. If a man has had vocational training, it may take less time.

Apprenticeship programs are probably the best way to train. These programs usually last about four years, with extensive on-the-job training in addition to classroom work. Most programs train the apprentice for general automobile repair work. Some allow the apprentice to specialize in work such as truck or bus repair. Those who wish to enter an apprenticeship usually have to complete high school.

> State agencies in cooperation with the U.S. Employment Service provide one-year programs in basic maintenance and repair work. More training is needed to become fully qualified.

General mechanics become specialists by working their way through many types of jobs, or by getting more formal training after they have completed their apprenticeships.

> Experienced mechanics employed by automobile dealers are sometimes sent to manufacturers' training centers to learn about new features in automobiles, such as fuel injection, power steering or air conditioning.

EARNINGS AND WORKING CONDITIONS

Automobile mechanics employed by companies that service their own vehicles, such as bus and taxi companies, averaged $3.01 an hour in July, 1964. These earnings varied from one part of the country to another.

Many skilled auto mechanics are paid a percentage of the labor cost charged to the customer. The labor cost is set before the job is done. The faster the mechanic can complete the job, the more he will earn.

> Apprentices are paid a percentage of the amount earned by the journeyman mechanic. This amount ranges from 55 per cent to 90 per cent over the apprenticeship period.

Most mechanics are required to have their own basic tools. A beginner can expect to spend about $100 for his tools. All other equipment will be furnished by the shop, except for uniforms, which may or may not be supplied by the employer.

> Many auto mechanics are members of labor unions. Many large automobile dealers and truck and bus companies employ union mechanics.

EMPLOYMENT OUTLOOK

The demand for auto mechanics is so great and the number of motor vehicles on the road is growing so fast, that each year there are many job openings for auto mechanics. These opportunities will increase in the future.

The general outlook is for more specialized men in the field. Much of the manual work in automobile repair work is being taken over by machines, so the helper or general mechanic will not be in as great demand as the more highly skilled specialist.

WHERE TO GET FURTHER INFORMATION

If you think your interests and abilities are in this line, contact some of the following for more information:

1. Your local branch of the U.S. Employment Service

2. The Automobile Manufacturers Association
   320 New Center Building
   Detroit, Michigan 48202

3. The International Association of Machinists (AFL-CIO)
   1300 Connecticut Avenue, N.W.
   Washington, D. C. 20006

You may wish to send for the following pamphlets:

1. "So You Want To Be An Auto Technician"
   Ford Career Guide No. 4
   Ford Motor Company
   Detroit, Michigan 48121

2. "Automobile Mechanic,"
   Michigan Occupational Guide No. 92
   Michigan State Department of Labor
   Lansing, Michigan 48900

Contact your school counselor, your auto shop teacher, and various repair shops which might employ auto mechanics.

BODY AND FENDER REPAIRMEN

Weekly Pay:	$100.00
Type of Work:	Inside or outside; skilled
Education:	High school desirable
Training:	Apprenticeship; on-the-job

Automobile mechanics include those who work on automobile bodies and those who handle all other parts of the automobile, including the motor, transmission and the electrical parts. In this brief, we will discuss only the body and fender repairmen.

WHAT THEY DO

Body and fender repairmen restore the appearance of damaged cars by shaping, finishing and replacing sheet metal, trim and glass. They repair fenders doors, frames and heavy chassis, and match the original paint. Experienced body and fender repairmen may be asked to estimate the cost of repair and fill out detailed insurance forms.

The body repairman's tools range from screwdrivers and grinders to specially shaped hammers, sanders, and welding and burning equipment.

TRAINING AND REQUIREMENTS

Most body and fender repairmen learn their trade through on-the-job experience. They might start as a helper to an experienced repairman, and gradually learn the necessary skills. Depending on how fast he learns, a body and fender repairman's on-the-job training lasts about three years or more. A body and fender repairman does not have to learn to repair the operating parts of the automobile. Therefore, it takes less time for him to learn his trade than it does for a regular auto mechanic.

> Another way to learn this trade is through an apprenticeship program especially for body and fender repairmen. This apprenticeship usually lasts about three years.

Beginners should have some understanding of car construction and like to work with their hands. High school or vocational school courses in general science, general mathematics, general shop, auto shop, electricity, sheet-metal shop, wood-shop and welding are very helpful. Practical experience in working on automobiles and part-time or summer employment at an auto repair shop would also be very useful.

EARNINGS AND WORKING CONDITIONS

Most shops are well lighted and ventilated, but they are noisy. There is some danger of burns from heated metals, and cuts from broken metal and glass. The work requires considerable lifting, but jacks are used for most of the heavier work. The job sometimes requires working in uncomfortable positions.

The body and fender repairman is expected to furnish his own handtools. A beginner can expect to spend between $50 and $100 for his tools.

Most body repairmen work about forty-four hours a week, including four hours on Saturday. However, many men work more than their regular hours.

Most trained body and fender repairmen receive a part of the labor charges on the work they do. Each job is assigned a fixed labor charge. The most highly skilled body repairmen can earn more because they are able to make repairs in less time. The average wage is $100 a week. In large cities, a very highly skilled body repairman can earn as much as $200 a week. A beginning body repairman earns less than the average, and will probably receive a set weekly or hourly wage.

EMPLOYMENT OUTLOOK

Employment in this field will increase rapidly because of the general increase in the use of motor vehicles.

WHERE TO GET FURTHER INFORMATION

You can write to the following places for information:

1. Automobile Manufacturers Association
   320 New Center Building
   Detroit, Michigan 48202

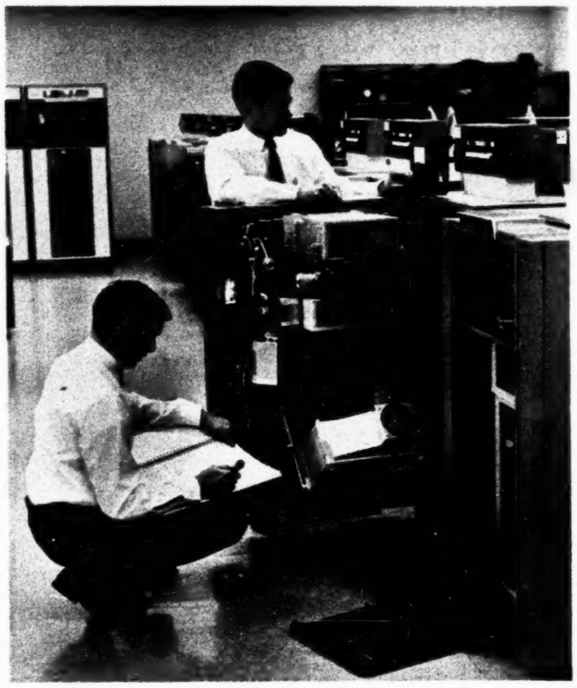
2. International Association of Machinists (AFL-CIO)
   1300 Connecticut Avenue, N.W.
   Washington, D. C. 20006

You can send for the following pamphlets:

1. "Automobile Mechanic," Michigan Occupational Guide No. 92
   Michigan State Department of Labor
   Lansing, Michigan

2. "Automobile-Body Repairman"
   Chronicle Occupational Brief No. 96R
   Chronicle Guidance Service
   Moravia, New York 13118 (25¢)

Many people in your community might be able to help you, including the school counselor, the auto shop teacher, and owners and employees of auto repair shops which employ body repairmen.



BUSINESS MACHINE SERVICEMEN

Weekly Pay:	$115.00
Type of Work:	Inside; skilled
Education:	High school desirable
Training:	On-the-job; formal or informal

Office equipment is becoming more varied and complex. In addition to the equipment frequently used in offices, such as typewriters, calculators, mimeographs and dictating machines, there are often expensive copying machines and various kinds of data-processing machines. All of this equipment needs repair and maintenance by experts.

WHAT THEY DO

Office machine repairmen not only maintain and repair machines used in offices, they also teach office workers to use the machines correctly. Companies which sell or rent office equipment send their own repairmen to their customers' offices to clean the machines and make sure that they are working well. This regular maintenance may be included with the purchase of the machine and is called a "service contract." Sometimes repairmen are called in to check a machine which is not working properly.

Sometimes part or all of the machine has to be taken apart in order to repair it. Repairmen use screwdrivers, pliers and adjustable wrenches, and special tools for repairing the particular machine they are working on.

If they work for a company which makes office machines, in addition to maintenance and repair work, repairmen may also do some sales work. Usually they sell service contracts or supplies, and receive a commission on what they sell.

Some specific types of office machines that frequently need repair are typewriters, manual and electric; adding, accounting and bookkeeping machines; calculating machines; cash registers; data-processing equipment; dictating machines; duplicating and copying machines; and postage and mailing equipment. Experience with the simple machines can lead to working on more complicated ones, and advancement on the job.

TRAINING AND REQUIREMENTS

The requirements for office machine repairmen will vary with the complexity of the machines in which they choose to specialize. Mechanical ability is necessary. A knowledge of basic electricity and electronics is becoming very important. The young man considering this field should enjoy mechanical work and finding out what makes machines run. A high school diploma is not absolutely necessary but to balance the lack of a diploma one must have high mechanical aptitude or some electrical or mechanical experience.

All shop, electricity, math and science courses in high school would be good basic training for this field. For training programs in the servicing of data-processing and dictating machines, the applicant is required to have additional electronics courses after high school. Post-high school training opportunities in this field are divided into two types:

1. Formal, on-the-job training in manufacturer's branch offices. To qualify for this type of training, applicants are frequently tested in basic mechanical aptitude and knowledge of fundamental electronics and electricity.

Men who qualify are trained to serve only the company's line of machines.

These men are usually sent to company schools for several weeks or months, depending on the machine they will service. They then receive from one to three years of experience and on-the-job training before they are considered fully qualified.

Company servicemen are encouraged to broaden their technical and general knowledge during their non-working hours. Many companies provide full or partial payment for courses taken at academic institutions, as well as for home-study courses in subjects related to the serviceman's work.

2. Informal, on-the-job training in an independent shop. Men in independent shops generally learn the trade by working with experienced servicemen who instruct them in the skills of their trade. In independent shops, the time required to become a skilled serviceman tends to be somewhat longer than in manufacturers' branch offices, because of the greater variety of machines and because there is no formal training.

EARNINGS AND WORKING CONDITIONS

Servicemen trainees, either with manufacturers or independent shops, earn from $65 to $75 per week depending on the kinds of machines they work on. Men with previous electronics training or armed forces or technical school training generally receive somewhat higher beginning wages. Servicemen receive pay increases as they become more skilled during the training period.

The more complex the machine, the higher the servicemen will be paid. Experienced typewriter servicemen earned from $85 to $110 per week in 1962, depending on how long they had been with the company and what type of machine they serviced. Experienced servicemen of calculators, cash registers, accounting-bookkeeping machines and non-electronic statistical machines earned from $90 to $120 per week. The highest wages were paid to those who serviced electronic data-processing machines. The most highly skilled of these earned as much as $175 per week.

Servicemen generally wear business suits. They do their work in the offices where the machines are used.

For this reason, many of these jobs involve traveling within the area served by the employer.

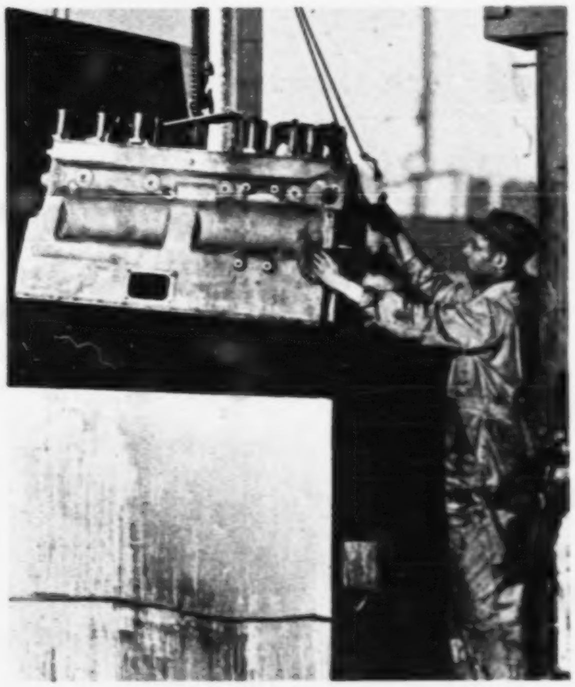
EMPLOYMENT OUTLOOK

As more and more types of office machines come into use, the demand for business machine servicemen will grow. It is also true, however, that as these machines become more complex, more training will be necessary in order to service them, or even to qualify for training programs. The opportunities for advancement in this field are good since many servicemen have the chance to move into full-time sales jobs or supervisor's jobs.

WHERE TO GET FURTHER INFORMATION

Inquire at the branch office of companies who make business machines. Talk to the servicemen themselves and their employers. Inquire at any independent repair shop or office machine rental business.

Your school counselor may be able to help you. Your state employment office will be able to give you more up-to-date information about this work.



DIESEL MECHANICS

Weekly Pay:	$110.00
Type of Work:	Mostly inside; skilled
Education:	High school desirable
Training:	Apprenticeship or on-the-job

The diesel engine industry is one of the newest and fastest growing industries in our country today. The diesel engine is used in all types of vehicles and in many machines. Diesel engines help to build roads, power railroads and buses, do heavy work in industry, and are sometimes used in automobiles.

WHAT THEY DO

There are two kinds of diesel mechanics. One is the mechanic who specializes in maintenance and repair. He does the periodic cleaning, adjusting, and tuneup necessary to keep diesel equipment in good running condition. When an engine is not working properly, the diesel repair mechanic determines what is wrong, and repairs or replaces broken or worn parts. Some diesel repair mechanics also repair brakes or steering systems on diesel vehicles.

The second type of diesel mechanic specializes in rebuilding engines. He takes the engine apart, examines all the parts for defects, and makes any necessary repairs or replacements. Then he reassembles and adjusts the engine.

The handtools used by diesel mechanics are about the same as those used by automobile mechanics. Some of the special testing equipment will be different. The tools they use include pliers, wrenches and screwdrivers. Other equipment might include dynamometers to measure the power of the engine, and mechanical lifting equipment, such as hoists and jacks. Machine tools, such as grinders, drills and lathes, are often used.

TRAINING AND REQUIREMENTS

Diesel mechanics are specialists within the field of mechanics. Many of their qualifications are the same as for any mechanic. They must have manual dexterity and an over-all knowledge of how machines work. They should like mechanical work and working with their hands. Good physical condition is necessary, because diesel mechanics are sometimes required to lift heavy objects.

Generally, employers look for those with a high school education and courses in physics, machine shop and mathematics. Other high school courses which would be helpful are drafting, sheet-metal shop, mechanical drawing, mechanics, automotive shop and general shop.

These courses are helpful to the future diesel mechanic because they develop the ability to use tools, to work with one's hands, to understand how various engines work, and how to read charts, graphs, tables and manuals.

There are several different ways to train to become a diesel mechanic. Most men who become diesel mechanics have had previous experience working on gasoline engines. They start as helpers and after three or four years become skilled at this job. They might then transfer to diesel work and complete a training program offered by firms that use or repair diesel-powered equipment.

While making the change from gasoline to diesel equipment, many men find it helpful to enroll in courses offered by various vocational, trade and correspondence schools.

Other diesel mechanics learn their trade through an apprenticeship program which lasts about four years. They learn by on-the-job experience and classroom instruction. Classroom instruction includes reading blueprints, hydraulics, welding and other related subjects. Apprentices get practical experience in fixing the particular types of diesel engines used by their employers.

Some diesel mechanics begin by working as a trainee for a company that owns or repairs diesel-powered equipment. They learn by watching and helping an experienced mechanic. How long they remain trainees depends upon the company and the amount of previous experience they have had.

Many high schools and vocational schools offer training for automobile mechanics. Graduates would not be fully qualified as diesel mechanics, but they would have the basic knowledge needed for apprenticeship programs or other training opportunities.

EARNINGS AND WORKING CONDITIONS

The work week usually runs between 40 and 48 hours. Many diesel mechanics work nights and weekends to repair equipment that must be used during the day. This is true of those mechanics who work for bus or trucking companies or for electric light and power plants. Diesel mechanics usually receive extra pay for working overtime.

A national survey of wages paid to diesel mechanics has not been made. Some figures are available showing that in late 1962, diesel mechanics earned from about $2.50 to $3.00 an hour. These figures also show that workers repairing diesel locomotives earned about $2.75 an hour.

Most of this work is done inside under good working conditions. Sometimes work might be done outside where breakdowns occur.

There is always some danger of injury when working with heavy equipment or engines. The danger of burns, cuts from sharp tools and metals, slippery floors and greasy equipment is always there.

It is often necessary for mechanics to stand for long periods of time. Stooping, kneeling, bending over and lying in cramped places are frequently required.

Diesel mechanics usually furnish their own handtools. The cost is about $100 for a beginner.

EMPLOYMENT OUTLOOK

There will be many jobs available for diesel mechanics because of the increased use of diesel equipment. However, companies tend to hire only those who have had experience. Those with little or no experience might have to look for employment as trainees and work up to better positions.

WHERE TO GET FURTHER INFORMATION

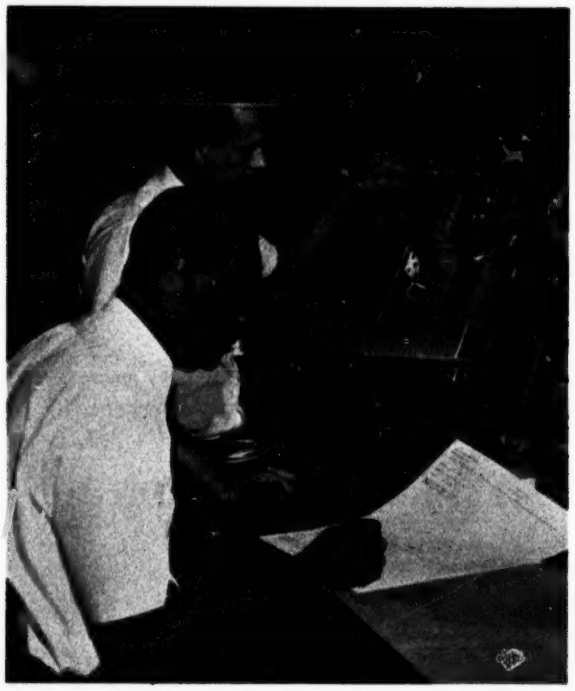
Your school counselor and shop teachers can help you to decide whether you should consider this trade.

Try to find a diesel repair shop in your community and talk with the mechanics and their employers.

You can send for the following pamphlets:

"Your Future in the Diesel Engine Industry"
Diesel Engine Manufacturers Association
Chicago, Illinois

"The Diesel Technician"
National Council of Technical Schools
912 17th Street, N.W.
Washington, D. C. 20036



ELECTRONICS TECHNICIANS

Weekly Pay: $130.00
Type of Work: Inside; skilled
Education: High school
Training: On-the-job

Because of the rapidly growing body of technical knowledge and ideas in all areas of our lives, electronics technicians perform in many occupational fields. Most electronics technicians specialize in one area and often in a subdivision of that area.

WHAT THEY DO

Electronics technicians are employed in four types of jobs:

1. Working with electronics engineers and scientists, they prepare or interpret blueprints and diagrams, develop and test experimental units, or assist in the designing of electronics circuits.

2. Employed in research, they assist engineers and scientists in the designing and testing of experimental devices. They may work out solutions to problems in

design, in the selection of materials, or in testing the operation of the unit after it has been built.

3. Working with engineers in manufacturing operations, they may help design or set up testing equipment which measures the quality of manufactured goods.

4. Employed in special maintenance and repair jobs, they might keep radar and other electronic equipment in good working condition. They might also be employed by radio and TV stations to operate and maintain electronics equipment in the studio or transmission stations.

Electronics technicians use many types of tools. They use screwdrivers, pliers and wire cutters. They also use more complicated types of equipment, such as oscilloscopes, signal generators, ohmmeters and multitesters.

TRAINING AND REQUIREMENTS

There are a number of training opportunities for these jobs. Technical institutes, community and junior colleges, colleges offering two-year technical programs, high schools, adult education through public schools and the Department of Labor, and extension divisions of many universities will offer programs for formal training. Some men qualify for these jobs through on-the-job training and experience, plus formal courses taken on a part-time basis, sometimes by correspondence. Training beyond high school is generally required for the higher level technical positions.

Electronics technicians usually enter this field as trainees receiving direct and constant supervision by experienced people. As they gain experience, they are given more responsibility. Those who show exceptional ability might obtain more formal training and be promoted to engineering positions.

All of these jobs require high school courses in science and mathematics. Other high school courses which are helpful are basic electricity, technical electronics, general shop, wood and metal shop, mechanical drawing and drafting. Technical and vocational high schools offer basic courses in electricity and technical electronics. Men who take one of these programs will not be fully qualified for most positions as electronics technicians, but further part-time training while working is often available.

Information about apprenticeship programs is available through the State Employment Service, the U.S. Bureau of Apprenticeship & Training, or from many employers.

Thousands of technicians are trained each year by the Armed Forces. These programs offer intensive short courses or training of a year or more. Those trained by the Armed Forces can later transfer their skills to civilian jobs.

EARNINGS AND WORKING CONDITIONS

Technicians' earnings depend on their education, technical specialty, work experience and the firm for which they work. In 1962, beginning technicians in industry who had completed a formal technical course after high school could earn from $3,700 to $5,700 per year. Those with less formal training usually earned less. Those entering beginning Federal Government jobs earned from $3,820 to $4,565, depending on their training. After five years' job experience, technicians who attended technical school after high school could expect to be earning about $6,500 or more a year.

Working conditions for electronics technicians will vary from job to job. Some jobs will require uniforms supplied usually by the employer, and some will not. Because this is exacting work, most places of employment will be well lighted and ventilated.

EMPLOYMENT OUTLOOK

This field is one of the fastest growing occupational areas in the country, and qualified applicants should have no problem in finding work.

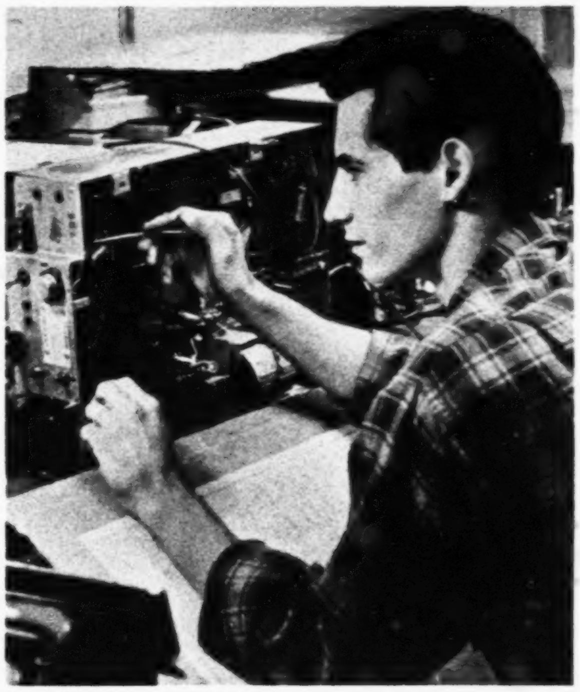
WHERE TO GET FURTHER INFORMATION

The best place to get information is from companies and government agencies who employ electronics technicians. Inquire at engineering firms and radio-TV repair shops, and talk with the technicians and their employers.

Other career information can be obtained from the following places:

American Society for Engineering Education
Technical Institute
University of Illinois
Urbana, Illinois 61801

National Council of Technical Schools
1507 M Street, N.W.
Washington, D. C. 20005



TELEVISION AND RADIO SERVICEMEN

Weekly Pay:	$110
Type of Work:	Mostly inside; skilled
Education:	High school
Training:	On-the-job

TV and radio repairmen have become an important part of the working force in our country. They work on radios used in homes, automobiles, industries and places of business. They repair tape recorders, public address systems and television sets of all kinds. They remodel and repair high-fidelity sound equipment and ship-to-shore radios.

WHAT THEY DO

These skilled workers use their knowledge and training in electronics and electricity to do their work. Some have the ability to work on all kinds of equipment, and others work on only one kind. Whether they specialize or not, their job is to find out what is wrong with the equipment and repair it. Their training helps them to know what is wrong as soon as they turn the equipment on. If the problem is a complicated one, they use meters and electronic test equipment to find out what is wrong. Vacuum tube voltmeters, multimeters, oscilloscopes, signal generators and other instruments might be used. Repairmen also work with wiring diagrams, which show how various parts are connected. They use instruction books and manuals which give lists of parts and describe the most frequent causes of trouble.

Some of the equipment is repaired at the customer's home or place of business. Equipment that needs the use of special tools might be brought to the shop.

Tools used include soldering irons, wire cutters, longnosed pliers, wrenches, screwdrivers and magnifying glasses. The work requires patience and care to avoid damage to the equipment or accident to the worker.

TRAINING AND REQUIREMENTS

Training in electronics and electricity is required for entrance into this trade. Vocational and trade school programs in these subjects are often available as part of a high school program, as adult education or as special trade programs offered by correspondence schools. Many men get this type of training in the Armed Forces.

Training lasts two to three years. This can be an informal training program offered by some employers, a formal training program such as an apprenticeship offered to those who have the aptitude and necessary skills to handle this work, or working as a helper to a skilled repairman.

Many manufacturers and employers conduct training programs to instruct employees in the repair of new products that have been introduced. Other servicemen keep up with developments by studying books and technical magazines.

It is important that these technicians be able to understand technical publications. They should have a background in basic electricity, mechanical drawing, drafting, physics, chemistry and mathematics.

They should not mind working with small parts and tools. They should have good manual dexterity and good color vision. Since an important part of their work is visiting the homes or businesses of customers, they must be courteous, sincere, and honest.

There are many opportunities for advancement. A serviceman may become a foreman or service manager. Some men open their own shops. Others go into a sales and service business.

In order to advance, the serviceman will find it necessary to get more advanced courses through a trade school, a vocational school, a technical institute or correspondence courses.

EARNINGS AND WORKING CONDITIONS

The U.S. Department of Labor states that in 1962 radio and TV repairmen earned from $100 to $115 a week. Some earned as much as $150 a week. Beginners started at about $65 to $75 a week.

Although repairmen usually work a 40-hour week, many are expected to be available for Saturday and emergency work.

Some physical strain may be involved in lifting heavy equipment, but generally the work is not too hard. There are a few hazards in this type of work, but many safety devices are used to keep accidents down to a minimum.

EMPLOYMENT OUTLOOK

The employment outlook is good for this trade. Today, nine out of ten homes have TV sets. Radios and other means of home and business entertainment are widely used and will continue to grow in popularity. It is expected that greater use of this equipment for non-entertainment purposes will be made.

WHERE TO GET FURTHER INFORMATION

Anyone desiring information about this field should first contact his school counselor and shop teachers, local radio and TV servicemen, dealers who sell and service this equipment, local TV service associations, and manufacturers of TV sets who provide training for servicemen.

See if your community offers vocational, trade or technical school courses that would prepare you for this field.

The U.S. Employment Service and its local offices offer information about job openings in your community and the qualifications needed for these jobs.

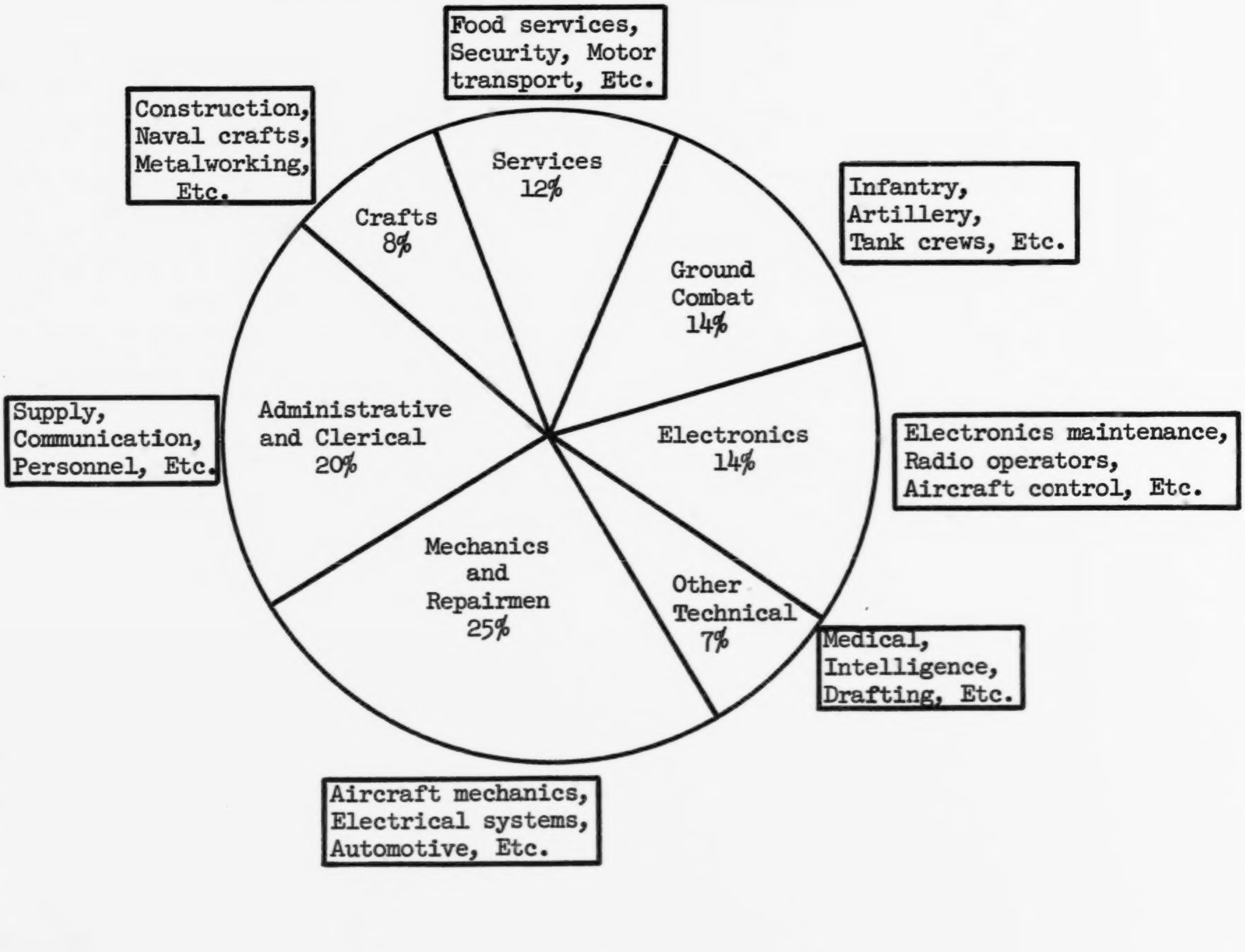
ARMED FORCES

The Armed Forces were established by our Constitution for the defense of the country and its citizens. The Armed Forces are maintained in three ways: voluntary enlistment, a Selective Service System or draft, and various reserve programs. The system is changed by Congress from time to time to meet the needs of the various military services.

All young men must consider their possible military service when planning their futures. At the age of eighteen, they must report to their Selective Service Board for registration and classification. At that time, a young man may decide to wait until he is drafted, or he may decide to enlist and begin his military service right away. Or, he may decide to take one of the reserve programs now available.

If a young man waits to be drafted, the chances of receiving future job training are not very good unless he re-enlists. Draftees are in the service for such a short period of time that training them would be of little benefit to the Armed Forces. If a young man wants to be trained for an occupation that will lead to a career in the Armed Forces or civilian life, he should plan to enlist.

Type of Work Performed by Enlisted Men in the Armed Forces, 30 June 1962



ARMED FORCES

A career in the Armed Forces has many advantages. Those who enlist will find many opportunities open to them. College education, training at the junior college level, correspondence courses, and training and practical experience in many fields are available. For instance, the Armed Forces today train men to operate, maintain and repair the many kinds of technical machinery and equipment that they use. Advancement is limited only by a man's own ability and ambition.

Congress passed the Reserve Forces Act in 1955. This allows a young man choices other than enlisting or being drafted for fulfilling his military obligation. One choice allows him to complete active military service in six months. He must then attend reserve meetings for seven and one-half years afterwards to complete his obligation. By serving in the reserve programs, he can complete his active military service just after high school and be able then to go into the civilian apprenticeship or industry training program of his choice, or go to college.

The Armed Forces encourage young men to finish high school. They advise them to plan their careers as early as possible, then take subjects and obtain experiences which will prepare them for their chosen field of work. The Armed Forces believe that the person with a good education will best serve himself and his country.

Armed Forces' benefits include thirty days of annual leave with pay. While on active duty, a man receives free medical and dental care.

Information about the Armed Forces is available from your school counselor, your local Navy, Army, Air Force, Marine or Coast Guard recruiting center, or from most public libraries.

General information on the occupations in the Armed Forces may be obtained from recruiting centers. The following is a list of the occupational publications used by each of the services. If these books are not available at the school library, they can be sent for at the addresses listed.

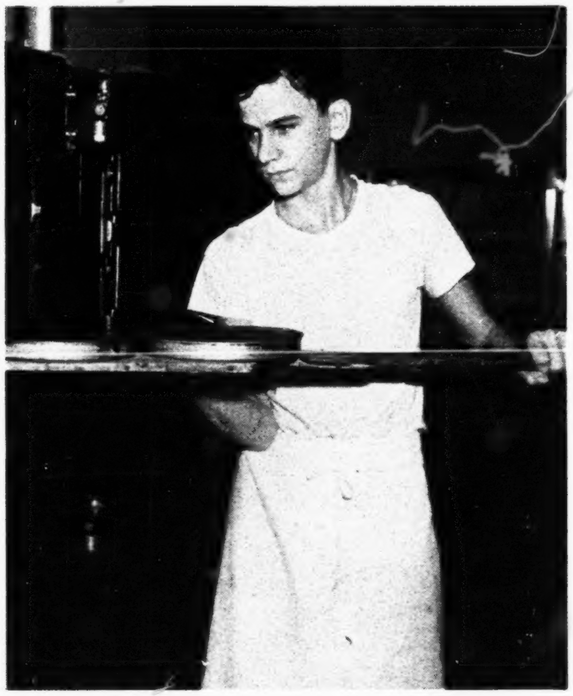
Army Occupations and You, Army Careers, U.S. Continental Command, Fort Monroe, Virginia 23351

Navy Occupational Handbook, Bureau of Naval Personnel, Department of the Navy, Washington, D. C. 20360

United States Air Force Occupational Handbook, Program and Analysis Branch, Personnel Procurement Division, Department of the Air Force, Washington, D. C. 20333

A Guide to Occupational Training, Commandant of the Marine Corps, Headquarters, U.S. Marine Corps, Washington, D. C. 20380

The U.S. Coast Guard - A Career Service, Commandant, U.S. Coast Guard, Attention: PTB-3, Washington, D. C. 20226



BAKERS

Weekly Pay: $110.00
Type of Work: Inside; skilled, semiskilled
Education: High school desirable
Training: Apprenticeship; on-the-job

Many different kinds of workers are employed in the baking industry, from machinery maintenance men to delivery truckdrivers. However, more than one-half of the persons employed in this industry are bakers. It is these jobs that will be described in this brief.

WHAT THEY DO

The baking process in a large bakery is quite different from that of a woman baking at home. She does the job from start to finish. The baker in a large plant does only a small part of the total process. He might load the mixing machines while other workers are watching the operation of the machines or inspecting the final product.

Each particular baking job has its own name. In the baking of bread, mixers weigh and blend the many ingredients. The ingredients are then sent to a proofing room where the warm temperature produces a fermenting process, causing the dough to rise. Then, other ingredients are added and again the materials are blended and the dough allowed to rise.

Dividermen operate machines which cut the dough by size and weight. The dough is rolled into forms which are dusted with flour in a rounding machine. Dough molders or molding machine operators then put the dough in a machine which presses all the air bubbles out. Bench hands knead and form the dough and place it into shaped pans. The product goes to the final proofing room where it rises for about an hour and is placed in an oven by a helper. Ovenmen adjust the temperature and timing devices on the ovens.

Often a baker will have his own shop. He must, of course, be thoroughly familiar with all baking processes, and he will probably have an employee or two in his shop.

TRAINING AND QUALIFICATIONS

Most bakeries hire helpers as inexperienced production workers. Their jobs might involve washing or greasing pans, carrying ingredients to mixing machines, taking troughs of dough to the proofing room, and generally assisting the bakers. By doing this type of work, they become experienced and may move into an apprenticeship program or a more responsible job.

Apprenticeship programs of three to four years are offered by many bakeries. Apprentices are usually chosen from among those helpers who are 18 to 26 years old, and have a high school education. These programs include classroom instruction and on-the-job training.

Other bakers begin by attending vocational school or by training in the Armed Forces. Such training does not make a skilled baker, but it does open the door to apprenticeship training.

Most states require bakers to have a health certificate which says that the individual does not have a contagious disease.

EARNINGS AND WORKING CONDITIONS

Earnings depend on the level of the job done. Production workers averaged $2.28 an hour in 1962. Location in the country and size of the community affect earnings. Generally, the West and Northeast, and larger cities pay higher wages.

Earnings of Production Workers in the Baking Industry (1962)

JOB	RATE PER HOUR
Baking Foremen (and all-around bakers)	$2.11 - 3.83
Mixers (dough or icing)	1.70 - 3.67
Dividermen	1.86 - 3.67
Benchmen	1.91 - 3.67
Ovenmen	1.90 - 3.67
Icers and Decorators	1.59 - 2.94
Slicing and Wrapping Machine Operators	1.59 - 2.71
General Helpers	1.59 - 3.22
Maintenance Mechanics	1.59 - 2.12
Maintenance Helpers	1.59 - 2.39

Baking is done around the clock, so some employees work nights and weekends for which they receive extra pay. Much night and weekend work is being eliminated by using new methods of freezing and storage.

Bakers usually work about 40 hours a week. For all workers, time-and-a-half is paid for working overtime.

Most plant workers are unionized through the American Bakery and Confectionery Workers' International Union, or the Bakery and Confectionery Workers' International Union of America (Ind.).

EMPLOYMENT OUTLOOK

The baking industry is growing and will continue to grow because of the increasing population and rise in income. However, there is a trend toward using more and more machines. There have also been great changes in methods which have reduced processing time. These changes will replace many unskilled people in the industry. The greatest demand in the future will be for skilled bakers and baking specialists. Fewer helpers and unskilled laborers will be needed.

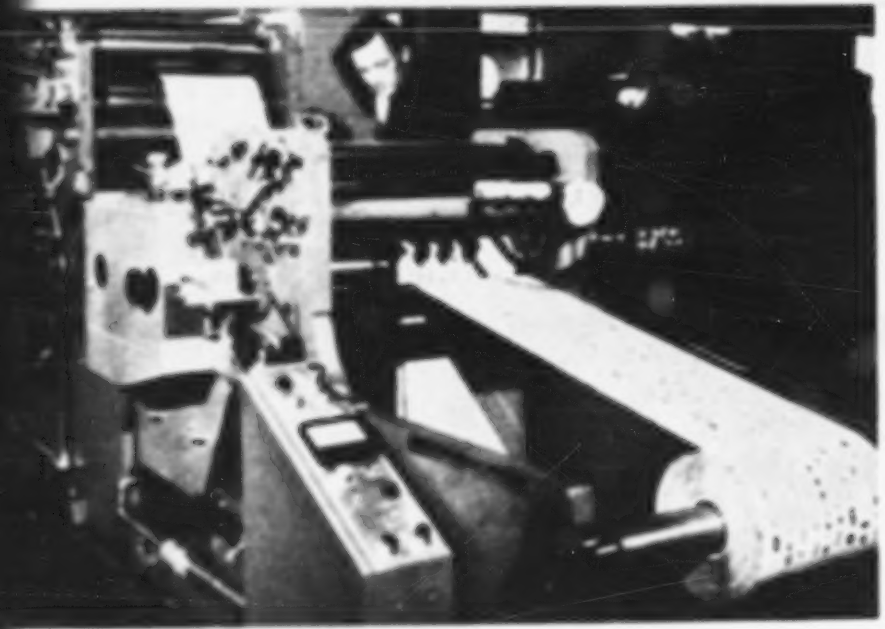
WHERE TO GET FURTHER INFORMATION

Talk with some of the people who work in bakeries in your community. High school students may obtain information by writing or talking to the Director of Vocational Education in your community, the counselor in your school or to the State Director of Vocational Education. Consider also the U.S. Employment Service officer in charge of apprenticeship programs.

General information may be obtained from:

American Bakers Association
20 North Wacker Drive
Chicago, Illinois 60606

Bureau of Labor Statistics
U.S. Department of Labor
Washington, D. C. 20210



Do you want a production job where the work is done inside and requires attention to detail? Perhaps you would like to be a Printer.

Do you have mechanical ability and like to repair things? Perhaps you would like to be an Appliance Repairman.

EMPLOYEE OWNED

Do you want a job that requires apprentice training, skill, physical strength, and good coordination? Perhaps you would like to be a Plumber.

PPORT FOR PUBLIC EDU

BUILDING CUSTODIANS

Weekly Pay:	$75.00
Type of Work:	Inside or outside; unskilled to semiskilled
Education:	High school desirable
Training:	On-the-job

Our cities are growing fast. To meet the demands of the growing population, housing and offices of all kinds are being built. It is the job of the building custodian to see that the facilities of these office and apartment buildings are running smoothly.

WHAT THEY DO

The building custodian's job might be divided into three areas: seeing that the building is kept in good repair, keeping the building clean, and making sure that the tenants are supplied with hot water, heat and light.

Building custodians don't just push a broom and carry a dust cloth. They fix leaky faucets, check gas and electric stoves and other appliances, change fuses and check radiators, adjust air conditioners and wash windows. They are responsible for removing snow, raking leaves, and sweeping sidewalks and walkways.

TRAINING AND REQUIREMENTS

Because of the many types of jobs that building custodians do, they are often called jacks-of-all-trades. Their job takes a lot of energy and sometimes quite a bit of physical strength.

They should be familiar with all types of cleaning supplies, new products that might be used, and have some experience with woodworking and electricity.

High school graduation is not necessary, but is helpful. In high school, the future building custodian might take courses in wood shop, basic electricity, sheet-metal shop, general science and general mathematics. English and speech are also helpful.

Building custodians must be honest and able to get along with other people, since they go into tenants' apartments and offices to make repairs.

Much of this work is learned on the job. Some unions, vocational schools and adult education centers offer courses which could be helpful.

EARNINGS AND WORKING CONDITIONS

The building custodian usually works alone. He can usually decide when to do the various tasks that are part of his job. The custodian who works in an apartment house is usually on call 24 hours a day, because of emergencies which might arise.

Building custodians are usually paid by the month, with living quarters provided. Earnings range between $100 and $700 per month depending on location, responsibility, whether or not one belongs to a union, and the amount of past employment. Remember that free rent, heat and utilities are part of the earnings. Tips and holiday gifts are often given to the building custodian by tenants to show that they appreciate what has been done.

Paid vacations and other benefits are often part of the pay. Building custodians will find they can spend more time with their families than many other men, because their homes are usually in the buildings where they work.

EMPLOYMENT OUTLOOK

Because our population is growing fast, apartment houses and office buildings will continue to be built.

This means more job opportunities for building custodians. Those who are best qualified will, of course, be hired first.

WHERE TO GET FURTHER INFORMATION

Many building custodians belong to a union, so for more information, write to:

Building Service Employees' International Union
312 West Randolph Street
Chicago, Illinois 60606

Visit apartment houses and office buildings and talk with the custodians and their employers. See what the custodians think about their jobs and what qualifications the employers require. Union offices, state and local employment service centers, and private employment agencies might be helpful.

Listed below is a publication describing the job of the building custodian:

"Apartment House Janitors"
Occupational Brief No. 336
Science Research Associates
259 East Erie Street
Chicago, Illinois 60611

BUTCHERS
(Meatcutters)

Weekly Pay: $115.00
Type of Work: Inside; skilled
Education: High school desirable
Training: Apprenticeship

Meat is an important part of our diet. Before people started moving to the cities, cattle sheep, and hogs were kept on individual farms and slaughtered as needed. With the move to the city, meat was supplied and cut up by the local butcher according to each customer's needs.

WHAT THEY DO

The job of the butcher has changed since the coming of the self-service supermarket. Today's butcher cuts halves, hindquarters and forequarters of meat into popular pieces, such as roasts, steaks and chops.

After the meat has been prepared, the butcher wraps, weighs and stamps the cuts of meat as to their content, weight and total cost. The meat is then taken to the self-service counters and arranged attractively by cut for the customers. Sometimes the butcher in a self-service supermarket may be asked to prepare a special cut of meat for a customer.

There are still many independently owned butcher shops serving customers who like to have their meat individually prepared. An independent butcher might specialize in kosher products, and might sell various types and cuts of meat which are not available in supermarkets.

Knives, cleavers, hand saws, slicing machines and power saws are his tools. Machines are used to make hamburger, cubed steak and patties. To keep his tools in good condition, the butcher uses grinders and sharpeners.

The butcher must maintain a high level of cleanliness. Each night the meat is removed from its display case and placed in a refrigerated room. The display case, meat trays, cutting tools, meat blocks and work benches must be cleaned. Maximum cleanliness must be maintained to meet requirements of laws to protect the customer. Inspections are made by government inspectors of facilities, personnel and meat.

TRAINING AND REQUIREMENTS

Meatcutters are continually handling food products and must be in good health and free of contagious diseases. Because his job requires working with and serving other people, a butcher must be neat and get along well with others. Because he is a specialist, customers will ask for his judgment about cuts of meat, quality and cost. Therefore, honesty and a sincere desire to serve are important qualities for a butcher to have. Good hand-eye coordination is important.

> Two or three years of apprenticeship is the usual way of entering this highly unionized field, since meatcutting requires much skill which can be acquired only on the job. The minimum entrance age is 17 or 18 years.

After completion of an apprenticeship, the worker becomes a journeyman meatcutter. As he gains experience, he may advance to a master butcher, then to a head butcher, or manager of a meat department. Or, he may wish to open his own shop.

> High school courses that might be helpful are bookkeeping, business math, food preparation and shop

courses that will develop the ability to work with the hands. Part-time or summer work in a grocery store, meat market or wholesale meat company, as a helper, delivery boy, clean-up boy, order packer or checker would be good experience.

Most shops prefer high school graduates. Graduation from a vocational school program in meatcutting would be good preparation. There are not many high schools offering such programs, and actual work experience is the best way of entering this field.

EARNINGS AND WORKING CONDITIONS

Salaries for this occupation vary, depending on the section of the country, size of the community, size of the business and whether or not it is unionized. Journeymen who belong to a union earn from $90 to $140 a week. If employed by an institution, hotel, or restaurant, a butcher might receive free meals. All uniforms are supplied by the employer.

One can depend on steady employment in this job. Working conditions include good lighting, heating and ventilation. Sudden temperature changes are part of the work, since meat is stored in large freezers. The butcher spends most of his work day on his feet, and must frequently lift heavy pieces of meat.

EMPLOYMENT OUTLOOK

Because of the increase in population and in the use of meat and meat products, employment opportunities for butchers should be good in the coming years. Also, self-service markets and prepacked meats have increased the demand for butchers in packinghouses and wholesale meat markets.

WHERE TO GET FURTHER INFORMATION

Write to the following for more information:

Amalgamated Meat Cutters and Butcher Workmen
of North America
2800 North Sheridan Road
Chicago, Illinois 60657

American Meat Institute
59 East Van Buren Street
Chicago, Illinois 60605

A visit to the local supermarket might be valuable. Speak to some of the butchers and find out what they do, what is expected of them, and how they feel about their job. Don't forget to talk to the employer and get his views.

If there is a local division of the meatcutter's union in your town or city, see what information they have. Your school counselor may have some information and might know of possible training programs located in your community.

You may want to send for the following periodicals:

The Butcher Workman
2800 North Sheridan Road
Chicago, Illinois 60605

Meat
59 East Van Buren Street
Chicago, Illinois 60605

Meat - Fresh and Frozen Food Merchandising
105 South 9th Street
St. Louis, Missouri 63102

COOKS AND CHEFS

Weekly Pay:	$95.00
Type of Work:	Inside; semiskilled to skilled
Education:	High School desirable
Training:	Apprenticeship or on-the-job

Every day millions of people eat in restaurants, cafeterias, snack bars and roadside stands. The most important employees in restaurants are cooks and chefs. Cooks and chefs are also employed in hotels, schools, hospitals, department stores, and aboard ships and trains.

WHAT THEY DO

In places which employ many cooks, such as large restaurants or hotels, each cook will be a specialist in preparing certain foods, such as soups, pastries, salads, vegetables and meats. A chef usually supervises the staff of cooks and helpers. He determines how large the portions of food will be, orders food and specialty items needed to maintain the menu, and creates new dishes. He also trains new employees in the kitchen, estimates food consumption, and helps the manager in purchasing food and planning and pricing menus.

To assist the cook, many large eating places employ pantrymen or salad makers who prepare and mix ingredients for salads, certain desserts and other types of food.

Small eating places usually have only one cook who prepares all the dishes. One or two helpers might assist him with the preparation of certain foods. His responsibility is very different because of the size of the eating place.

TRAINING AND REQUIREMENTS

There are no specific educational requirements for this job. Most chefs and cooks enter the occupation either through on-the-job training or by a more formal apprenticeship program. Courses are available in various high schools, vocational schools, trade schools and specialty schools for training along these lines. Employers give more consideration to those who have had experience in restaurant cooking. Some local restaurant associations offer specialized cooking courses.

The courses offered give training in:

1. The use and care of equipment
2. Food standards such as selecting, preparing and serving food, and determining the size of servings
3. Proper sanitation procedures, including those required by public health standards
4. Cooking methods
5. The preparation of special dishes

EARNINGS AND WORKING CONDITIONS

Most restaurant employees usually work 40 to 48 hours a week. Because restaurants are busier during meal-times, many chefs and cooks have to work split shifts.

The cook or chef is almost always on his feet. Kitchens in restaurants are usually hot. Restaurants are open every day of the year in many places, and chefs and cooks usually work on weekends.

Many restaurants are air-conditioned, have good working areas, and the latest equipment and labor-saving devices. In other restaurants, particularly the small ones, working conditions might not be as modern.

A survey found that the hourly wages of men employed as assistant chefs ranged from $1.04 in Memphis to $2.63 in the San Francisco-Oakland, California, area.

Short-order cooks made an hourly rate of $1.06 in Dallas and Houston, Texas, and $2.33 in the San Francisco-Oakland, California, area. Women cooks and chefs are often paid 10 to 80 cents an hour less than men. Salaries are hard to average as different wages are paid in different parts of the country. Wages were lowest in the South and highest on the West Coast.

Head cooks averaged from $1.30 an hour in Memphis, Tennessee, to $3.31 an hour in the San Francisco, California, area. Their yearly income ranged from $3,000 to $7,000.

EMPLOYMENT OUTLOOK

People will always have to eat. Restaurants are growing in number and volume of business each year. For these reasons, chefs and cooks will be in demand, especially if they are well qualified.

Employment opportunities are generally good for cook assistants or kitchen helpers because of a very high annual turnover. Most helper jobs are for men but a few women are employed. Many women are employed as cooks in private households.

WHERE TO GET FURTHER INFORMATION

Additional information about careers as a cook or chef may be obtained by writing to:

Educational Director
National Restaurant Association
1530 North Lake Shore Drive
Chicago, Illinois 60610

The Lewis Hotel-Motel Training School
Washington Circle
Washington, D. C. 20037

Many public and private schools offer training opportunities for this field. A list of these schools may be obtained by writing to:

Council on Hotel, Restaurant and Institutional Education
Statler Hall
Cornell University
Ithaca, New York 14850

The United States Government publishes a pamphlet entitled "Food Service Industry: Training Program and Facilities," United States Department of Health, Education and Welfare, Bulletin 298, 1961. You may receive this pamphlet by sending 65¢ to:

Superintendent of Documents
Washington, D. C. 20402

You might also speak to a school counselor or home economics teacher. Many communities offer cooking courses as vocational training. If yours does, visit the school and talk to some of the teachers. Visit restaurants where you might be able to observe the work done by the chefs and cooks. Be sure to visit both large and small restaurants. Talk to the chefs and the employers or managers of the restaurant.

DRAFTSMEN

Weekly Pay:	$100.00
Type of Work:	Inside; skilled
Education:	High school
Training:	Apprentice or on-the-job

The draftsman's job starts long before any product reaches production. This is true whether the product is a building or a submarine, a new tool or a bridge.

WHAT THEY DO

Draftsmen draw detailed plans showing the dimensions and specifications for the entire product and each of its parts. They take ideas, rough sketches and calculations of engineers, architects and designers and turn them into complete and accurate working plans. These plans are used by the skilled craftsmen who actually make the product.

Compasses, dividers, protractors, T-squares, triangles, pens and pencils are the tools draftsmen use. A library of reference materials is available to answer their many questions. Engineering tables and charts are used.

There are four basic kinds of draftsmen. Senior Draftsmen use the information provided by engineers or architects to prepare scale drawings. Detailers then make drawings of the various smaller parts down to a particular type of nail or bolt. Checkers then examine the drawings made by detailers and senior draftsmen for errors in computing or drawing. Tracers are usually those new to the field. They make corrections and prepare drawings for reproduction by tracing them on transparent cloth, paper or plastic film.

Draftsmen specialize in various fields. These fields include mechanical, electrical, aeronautical, structural and architectural drafting.

TRAINING AND QUALIFICATIONS

Many schools offer courses which interested persons can take. Courses are also open to those who have graduated from high school or vocational school and wish to continue their education with more specialized study. Some students take correspondence courses. Many technical or community colleges offer courses such as structural design, strength of materials, and physical metallurgy.

Apprenticeship training is available and lasts from three to four years. Apprentices will have on-the-job training and also attend classes to bring them up to the level of journeymen.

Beginning draftsmen should have had courses in mathematics, physics, chemistry, mechanical drawing, drafting, wood shop, metal shop, electricity and architectural design. Those with only a high school education usually start out as tracers. Those with some formal training beyond high school might start as junior draftsmen.

Beginning draftsmen must be able to visualize solid objects when looking at a drawing or blueprint. The ability to use the various tools of this trade is important. This ability includes a steady hand and good eyesight. Freehand drawing is seldom required, but an ability to draw is very helpful, and is necessary in some positions.

EARNINGS AND WORKING CONDITIONS

Working conditions are usually very good. Draftsmen bend over in a seated position to do their drawing, and there are special lights, desks and chairs to make this exacting work more comfortable. Work is always done inside, and shirt sleeves and an informal atmosphere are common.

Earnings in this field vary from level to level. Senior draftsmen average $134.00 a week, junior draftsmen $100.00 a week, and tracers, $83.00 per week.

EMPLOYMENT OUTLOOK

Employment of draftsmen is expected to continue to rise with the boom in construction and technology. Well-trained draftsmen should find little difficulty in obtaining employment. However, many routine tasks are being eliminated by automation. This means that those who have had formal training beyond high school will be in more demand.

The manufacturing industries employing the largest number of draftsmen are the machinery, electrical equipment and fabricated metal products industries. Aircraft, missile and spacecraft industries also hire draftsmen. There are many engineering, architectural, construction, public utilities and transportation firms who need draftsmen. The Armed Forces also use draftsmen, and provide excellent training for this occupation. Also, the highway and public works departments of the federal state, and local governments hire draftsmen.

WHERE TO GET FURTHER INFORMATION

See if you can arrange to talk with a draftsman and his employer. There is no better way to learn about the job than from those who employ draftsmen or the draftsmen themselves.

The following organizations will be glad to help you obtain leaflets describing the draftsman's work:

American Institute for Design and Drafting
18465 James Couzens
Detroit, Michigan 48235

American Federation of Technical Engineers
900 F Street, N.W.
Washington, D. C. 20004

GASOLINE SERVICE STATION ATTENDANTS

Weekly Pay:	$70.00
Type of Work:	Outside; unskilled to semiskilled
Education:	High school desirable
Training:	On-the-job

Gasoline service stations are found in every city and town, and along every highway in this country. They provide many services for motorists.

WHAT THEY DO

When a motorist drives into a gasoline station, the first one to greet him is a service station attendant. The attendant might pump gasoline, change or check the oil, grease various parts of the car, clean the windows, check the water level of the radiator and battery or put air in the tires. He might also direct the driver to an address, supply free maps or allow the use of restrooms.

The service station attendant sells tires, batteries, headlight bulbs and accessories, such as seat covers, windshield wiper blades and mirrors.

In small stations, the attendant may install accessories or do minor maintenance and repair work. Such responsibilities include lubrication, rotating tires, replacing mufflers, changing spark plugs, repairing a flat tire, changing a fan belt or replacing a headlight.

In larger stations employing many attendants and mechanics, each attendant does a special job. There are lubricators, car washers, driveway salesmen, mechanics, and managers.

Since customers are more apt to use a clean service station, the attendant is responsible for keeping the station as clean and neat as possible at all times.

Some service stations have emergency road service. The attendants may drive a tow truck to a stalled car and change a flat tire or make other minor repairs. If major repairs are necessary, he tows the car back to the service station.

In performing all these jobs, the attendants will use a number of tools, such as wrenches, pliers and screwdrivers. They might be trained to use more complex equipment such as battery testers, motor analyzers, wheel balancers and alignment machines.

TRAINING AND REQUIREMENTS

Employers prefer high school graduates, although men with less education are hired. If an applicant wants to qualify for attendant training programs run by many oil companies or advance to a higher level position, he should have a high school education.

An applicant for a job as a gasoline service station attendant must have some sales ability, a driver's license and an understanding of how an automobile works. He should be friendly and able to speak well, present a generally neat appearance, and have self-confidence. He should know simple arithmetic so that he can make change quickly and accurately and help keep business records. An applicant should be acquainted with local roads, highways and points of interest in order to be able to direct strangers.

Such high school courses as general mathematics, bookkeeping, English, speech, general shop, auto shop and general science would be helpful to those considering this job.

Most service station attendants are trained on the job by either the manager or an experienced attendant. There are some formal training programs offered by oil companies, which last two to eight weeks and emphasize simple automobile repairs, salesmanship and business management.

Training for this job is offered in some high schools as part of their work-study program. Students spend two years taking various business courses and receiving on-the-job training in a service station.

Other training programs are offered by the U.S. Employment Service through the vocational education agencies of many states. These programs last up to one year. They give instruction in the maintenance and repair duties of the job. This training qualifies the attendant to do more difficult automobile repairs as well as sell gasoline.

EARNINGS AND WORKING CONDITIONS

Service station attendants will work outside in all kinds of weather. They spend much of their time on their feet, and stooping, bending, lifting and crawling under cars will be part of their jobs. Many service stations require their attendants to wear uniforms. Some stations furnish these uniforms and pay for the cost of having them cleaned.

Pay for this job varies considerably in different parts of the country, and is affected by the size of the station. Wages are generally higher in the large stations. In mid-1961, full-time attendants earned about $70 a week.

Attendants are sometimes able to supplement their income by receiving commissions for selling certain products and services. Most attendants work more than 40 hours a week. Night, weekend and holiday work is quite common since many stations do most of their business at these times when there are more cars on the road.

EMPLOYMENT OUTLOOK

The outlook for this occupation is very good. Greater use is expected to be made of cars as families have more leisure time and as roads get better. This means more gas pumped, oil changed, and general servicing and repairs done by service stations.

There is a high turnover rate in this occupation because many attendants go on to further training to become mechanics or specialists in some phase of the work.

WHERE TO GET FURTHER INFORMATION

Visit service stations and speak to the attendants and their employers. Ask them about jobs, about the hours they work, the pay they receive and the qualifications needed for the work.

Your school counselor can give you ideas about available jobs in your community and various training programs which are offered. The local branch of the U.S. Employment Service quite often will give various tests to see if you are suited for this kind of employment.

MACHINE SHOP WORKERS

Weekly Pay:	$130.00
Type of Work:	Semiskilled and skilled
Education:	High school desirable
Training:	Apprenticeship; formal

Almost every product in American industry is made either of metal parts or made by machines of metal. Many of these metal parts and machines are made by machine shop workers. These skilled and semiskilled industrial workers make up the largest occupational group in the metalworking trades.

WHAT THEY DO

Machine shop workers perform tasks involved in using various types of power-driven machines which cut, trim, punch, drill, grind and shape metal parts. Machine shop workers follow directions from plans. The plans tell them exactly what they are to do.

There are many types of machine shop workers. Following is a list of some of them and the work they perform:

All-round machinists are skilled workers who operate any of a number of machines. They run lathes, drilling machines, milling machines, grinders and other machine tools.

Machine tool operators usually work with only one kind of machine tool. They are more apt to be younger men who are learning the trade.

Tool and die makers are highly skilled machinists who specialize in making jigs and fixtures used in machining operations, dies for use with presses and die casting machines, and special gauges.

Instrument makers are also highly skilled machinists. They work with great accuracy, making instrument parts of metal or other materials. They often assemble and test precision instruments.

Setup and layout men are specialized skilled workers who work in plants which produce large amounts of metal products. Setup men adjust machine tools so that semiskilled operators can run them. Layout men mark directions on metal so that an operator can perform the proper machining operations.

TRAINING AND QUALIFICATIONS

Machine shop workers are expected to be able to work well with their hands, have good eyesight and be able to judge depth and distance. Mechanical ability and a temperament suited to perform this exacting work are necessary.

General shop, sheet-metal shop, mechanical drawing, drafting, or perhaps a vocational program in this field would be helpful courses to take in high school. Applicants should also do at least average work in English and mathematics in order to understand the instructions and layouts for the jobs to be done.

Many high schools, vocational schools and trade schools offer programs in machine shop work. Others offer work-study programs where the students work a half-day and attend school the other half-day. In this way, students are able to get practical experience on the job and can find out if they really have the interest and skill needed.

The usual method of entering this work is through an apprenticeship program of on-the-job training and classroom instruction that will last from 3 to 4 years.

On the job apprentices get instruction in all parts of their work. They are taught to operate machine tools, and to use handtools and measuring instruments. Classroom instruction will include blueprint reading, mathematics and other related subjects.

Some companies use tests to find out if applicants are capable of doing this work. Other employers consider the background of the applicants. It is a good idea for applicants to try to obtain as much experience as possible before applying for a position. Summer jobs and part-time work would be two good ways of gaining such experience.

A number of machinists participate in training programs offered by companies who manufacture machinery. The programs usually train men and women to maintain and repair machine tools.

EARNINGS AND WORKING CONDITIONS

This work is not physically strenuous. Machine shop workers do most of their work standing up and bent over machines, but they move about frequently. Most shops are fairly clean, well lighted and free from dust. Many precautions must be taken to avoid accidents. Safety goggles must be worn at all times.

Tool and die makers are the highest paid group of machine shop workers. Their earnings are usually above those of other skilled industrial workers. Journeymen machinists were paid an average of $3.29 an hour as of July, 1964. Some highly skilled machine shop occupations pay up to $4.00 an hour. The rate of pay in this trade will depend on the length of service and location of the job. Some machinists will be asked to work over the usual 40-hour week and will receive overtime pay.

EMPLOYMENT OUTLOOK

The employment outlook for machine shop workers, especially in the area of maintenance, is very good. Automation is doing away with some jobs but is creating others.

Apprentices are needed. Not enough apprentices are being supplied by current apprenticeship programs.

There are about 1,125,000 machinists today, which makes this a large occupation. They are employed in almost every city and state in the country.

WHERE TO GET FURTHER INFORMATION

A number of organizations and agencies offer information helpful to anybody considering this line of work. The following is a list of some of these:

The National Machine Tool Builders Association
2139 Wisconsin Avenue
Washington, D. C. 20007

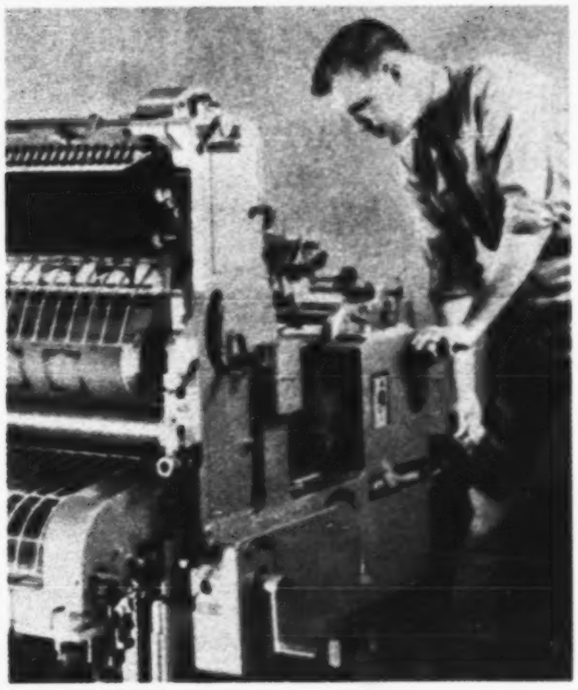
International Association of Machinists
1300 Connecticut Avenue, N.W.
Washington, D. C. 20007

National Tool, Die and Precision Machinery
Manufacturers Association
1411 K St., N.W.
Washington, D.C. 20005

Information on apprenticeship training is available from The National Tool, Die and Precision Machinery Manufacturers Association, listed above.

The school counselor in most public schools will have information about this field. Offices of the State Employment Service offer aptitude testing to persons interested in seeing whether they have the ability and aptitude for this work.

Your own community might have apprenticeship programs available for machine shop work. Visit these places and ask questions of those who run the shops and those who work there. See what they think about the occupation.



PRINTERS

Weekly Pay: $145.00
Type of Work: Inside; skilled
Education: High school
Training: Apprenticeship; vocational or technical school

Originally, books had to be written by hand. In 1454, a German by the name of Gutenberg invented movable type, and the use of printing spread rapidly.

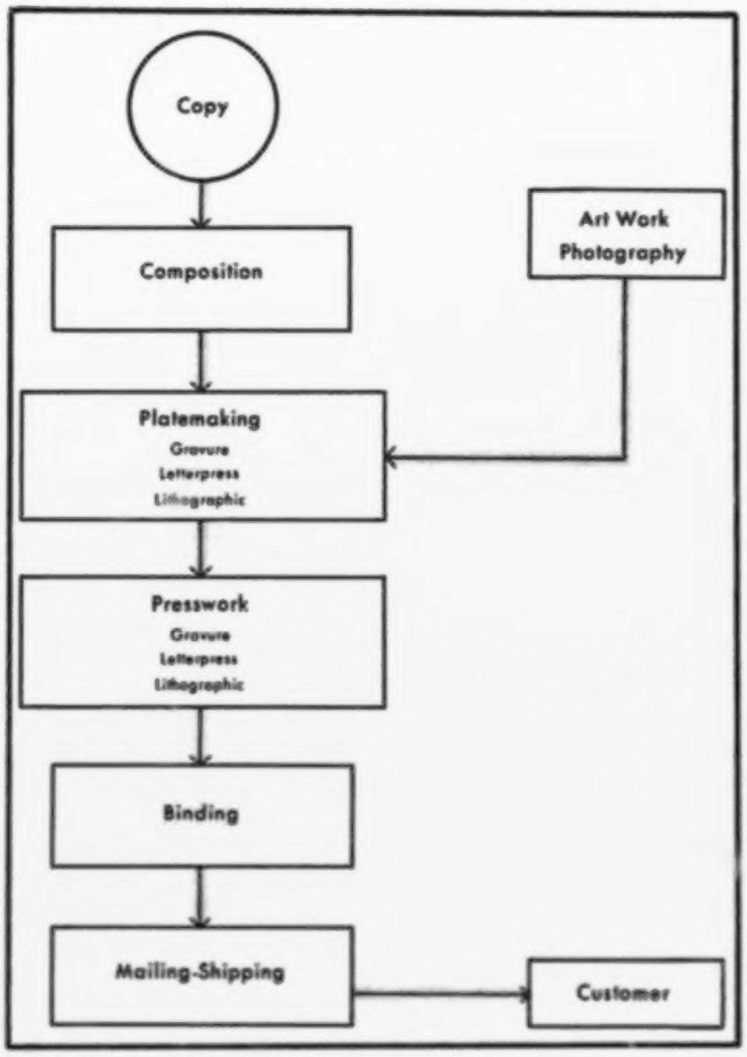
Today, printing is used in almost every industry, not only for books, newspapers and magazines, but for business forms, bank checks, stationery, labels on packaged goods and many other things.

WHAT THEY DO

Printing is the process of transferring ink impressions of letters, designs and illustrations to paper, metal or other materials. The three basic printing processes are letterpress, gravure, and lithography or offset printing. Each method has special advantages and requires some special skills.

PRINTERS

This chart shows what happens to material to be printed.


Copy
Composition
Art Work Photography
Platemaking
Gravure
Letterpress
Lithographic
Presswork
Gravure
Letterpress
Lithographic
Binding
Mailing-Shipping
Customer

Regardless of the printing method used, most printing work goes through several processes: layout, composition, platemaking and presswork. Additional processing in a bindery is needed for books and magazines. The completed materials are then prepared for mailing and shipping.

There are more than 65 different occupations in the printing industry. Some of the jobs available are the following:

COMPOSING ROOM OCCUPATIONS. The two principal composing room occupations are those of *hand compositors* and *typesetting machine operators*.

Hand compositors set type by hand for fine printing. Most headlines, advertisements and title pages of books are set by hand, one letter at a time. Artistic ability is necessary for the hand compositor. He must arrange and space the type to produce a well-balanced effect.

Typesetting machine operators are skilled workers who operate semiautomatic machines which set the type mechanically. Machine operators can set type much more rapidly than hand compositors. Nearly all newspaper plants and large commercial shops use these machines and operators to set type.

PLATEMAKING OCCUPATIONS. Copies of the assembled type are often cast in or engraved on metal so that one setting of type can be used many times, or in more than one press at a time. These copies are called plates. Making them is the job of the photoengraver, electrotyper and stereotyper.

PRESSROOM OCCUPATIONS. The actual printing operation is performed in the pressroom. Pressmen fit the printing form or the plates into the press, feed the press with ink and paper, and keep it rolling.

Pressmen's work may differ from one shop to another because of the differences in the kinds and sizes of presses used. Small commercial shops generally have small, simple presses that are often fed paper by hand.

At the other extreme are the enormous web-rotary presses used by the big newspaper and magazine printing plants. These presses print the paper on both sides; cut, assemble and fold the pages; and finally, count the finished newspaper sections.

These steps are done automatically by different machines, each of which calls for constant attention while a run is being made. Presses of this kind are operated by crews of pressmen helped by press assistants.

OFFSET LITHOGRAPHY OCCUPATIONS. The occupations described in the preceding paragraphs are found mainly in letterpress printing. Letterpress is still the most widely used method of printing, but offset lithography is growing fast.

Offset lithography uses photography, electronics and chemicals in the printing process. Anything that can be photographed can be lithographed. Offset is an economical and effective type of printing for publications that use many illustrations, because it produces half-tones of fine quality.

There are many job opportunities in offset lithography for high school graduates who have interests and skills in science or photography. The main groups of lithographic workers are:

1. The cameramen who photograph the copy
2. The artists who make any necessary corrections on the negatives of the copy photographed
3. The strippers who assemble all the film into a layout
4. The platemakers who make the assembled film into press plates
5. The pressmen who install the plates onto the press and operate the presses

TRAINING AND REQUIREMENTS

The usual way to learn this trade is through a four- to six-year apprenticeship program. The program includes classroom instruction and on-the-job training. Some people also learn a printing occupation while working as helpers in small printing shops.

In selecting applicants, most employers require a high school education. A knowledge of spelling, punctuation, grammar and basic mathematics is essential for some printing trades. A knowledge of the basic principles of chemistry and physics is becoming more important because of the growing use of lithography.

About 4,000 schools in the United States now offer special courses in printing. These courses may help a young person qualify for apprenticeship programs or jobs as helpers.

EARNINGS AND WORKING CONDITIONS

Printers are well paid. Earnings depend on the particular job chosen and the community in which a printer works. In 1964, production workers in printing averaged $144.80 a week, or $3.62 an hour.

The starting wages of apprentices is generally 40% to 50% of the basic rate for journeymen in the shop. Wages are increased, usually every six months, until the final year of training when apprentices will receive 80% to 95% of the journeymen's basic rate.

EMPLOYMENT OUTLOOK

The printing industry employs more than 900,000 men and women. Many more apprenticeship trainees are needed. There are good opportunities for young men who are willing to spend several years in learning a skilled trade.

Printing jobs are found throughout the country. Newspapers and publishing firms hire the most people.

Commercial or job printing establishments are the second largest employers.

WHERE TO GET FURTHER INFORMATION

Information can be obtained from various sources. Those interested can visit the printing shops in their areas. Local unions in the printing industry can often provide information about apprenticeship openings, and state employment offices often have the same kind of information. Vocational or technical schools often help in the placement of their graduates. School counselors and shop teachers will have much information.

General information about the printing industry can be obtained by writing to the following organizations:

American Newspaper Publishers Association
750 Third Avenue
New York, New York

International Printing Pressmen and
Assistants Union of North America
711 14th St., N.W.
Washington, D. C. 20005

Printing Industry of America, Inc.
20 Chevy Chase Circle, N.W.
Washington, D. C. 20015

THINK
DRIVE SAFELY
CONTROL SMOKE
AND NOISE
BE COURTEOUS
BEYOND THESE GATES
YOU ARE

TRUCKDRIVERS

TRUCKDRIVERS MAKE UP THREE-FOURTHS OF WORKERS IN DRIVING JOBS........

		Percent of employment 1962
Local truckdrivers	XXXXXXXXXXXXXXXXXXXXXXXXX	49%
Over-the-road truckdrivers	XXXXXXXXXXXX	24%
Routemen	XXXX	8%
Taxicab drivers	XXX	6%
Local transit bus drivers	X	2%
Intercity bus drivers	X	1%
Miscellaneous drivers	XXXXX	10%

Transportation has changed dramatically in the 20th century. Today, vehicles of all kinds carry products from country to country, from city to city, and from block to block. Much of this transporting is done by trucks.

As shown on the chart on this page, there are many types of truckdrivers, some carrying people, some delivering products.

In this brief we shall describe only those truckdrivers whose job is transporting products from place to place. We have divided this type of truckdriver into two kinds: the long-haul over-the-road truckdriver, and the local delivery truckdriver.

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ILL CC 8815MC P
EX 14500
PSCI 6065 A-1

OVER-THE-ROAD TRUCKDRIVERS

Weekly Pay:	$125.00
Type of Work:	Outside; skilled
Education:	High school desirable
Training:	On-the-job

WHAT THEY DO

Over-the-road truckdrivers operate very large and expensive equipment and spend most of their time driving. Some may have to load and unload their goods, such as long distance movers, or those who deliver to stores at night when receiving crews are not working. Over-the-road drivers haul goods over long distances and drive night and day.

TRAINING AND REQUIREMENTS

Over-the-road drivers are often on their own and must meet time schedules. Therefore, they must be able to take responsibility for the safety of the truck and the freight it contains.

There is considerable ability needed to perform this job. Trucks weigh many tons and require much skill to drive and maneuver. A driver must be familiar with the truck he drives and how it may react in all kinds of situations. Since he must be able to judge distances in narrow alleys as well as on the highway, an over-the-road driver must have excellent eyesight and coordination.

Patience and courtesy are extremely important qualities for over-the-road truckdrivers. They are known for their safe-driving practices and are the most courteous and helpful drivers on the road. They often stop to help drivers in distress. When going up long hills they pull the truck over close to the side of the road to allow other traffic to pass.

Any form of transportation between states is controlled by the Interstate Commerce Commission (ICC). The ICC requires truckdrivers to keep a record of their trips and to inspect their trucks before and after each trip. The ICC also regulates the minimum qualifications for over-the-road drivers. They must be at least 21 years old, in good health and strength, and have good hearing and vision. One year's driving experience with a good record and the ability to read and speak English are other requirements. A commercial driver's license is required by most states.

Because of the value of the tractor-trailer and the freight it hauls, employers look for drivers with a lot of experience, considerable know-how and a good sense of responsibility.

Driver training courses would be good beginning training. High school courses such as auto mechanics shop, mathematics, general science, geography, bookkeeping and English would be helpful.

Some companies have extensive training programs. In order to qualify for these programs an applicant must pass a series of tests which demonstrate his driving ability, vision, judgment, patience and courtesy. Applicants are usually required to pass a physical examination. The last step in the selection of drivers is usually a road test. Once an applicant has been hired, he will usually have a trial period during which he observes and works with an experienced driver.

EARNINGS AND WORKING CONDITIONS

Earnings for over-the-road truckdrivers are the highest in the business. In 1962, these drivers earned about $125 to $150 a week. Many drivers earned more. In this occupation, the pay rate does not vary a great deal from one area to another.

The earnings of an individual driver depend on mileage driven, hours worked, type of equipment driven, weight of the load and the type of cargo. If the cargo is flammable or otherwise dangerous, the rate of pay is higher.

> Because of the danger of falling asleep at the wheel, and because this kind of work is a strain on the driver, the ICC limits the hours a driver may work. A 50-hour work week is common.

This type of driver spends considerable time away from home since most of his jobs are overnight hauls. When a driver is on the road, the company provides a place for him to sleep. Some companies use sleeper cabs that allow one man to drive while the other is resting. Sometimes when driving alone, a driver will pull his truck into a gas station or special truckstop and sleep in the cab of his truck.

> This type of work is very tiring, the hours are long, and often the driver works alone. Sitting in one place for hours and the strain of night driving is

fatiguing. Improvements, such as better roads and better equipped trucks, have made the job less of a strain.

EMPLOYMENT OUTLOOK

Trucks have been hauling an increased share of the total freight shipped from one part of the country to another. This method has proved to be economical and convenient. Also, improvements in trailer design, such as refrigeration, have made it possible to haul a greater variety of foods and other products long distances by truck. An increase in the employment of over-the-road truckdrivers is expected.

WHERE TO GET MORE INFORMATION

Most over-the-road truckdrivers are members of the International Brotherhood of Teamsters, Chauffeurs, Warehousemen and Helpers of America (Ind.). Your school counselor would be able to tell you how to contact a local representative of this union for information.

The U.S. Employment Service in your area would be able to supply information about job openings.

Information on career opportunities may be obtained by writing to:

American Trucking Associations, Inc.
1616 P Street, N.W.
Washington, D.C. 20036

LOCAL TRUCKDRIVERS

Weekly Pay:	$100.00
Type of Work:	Inside; semiskilled
Education:	High school desirable
Training:	On-the-job

WHAT THEY DO

Every morning, the driver receives his delivery assignments for the day. He then checks his trucks, noting anything that might need repair. If his load is heavy, a helper might be assigned to go with him. The driver has the responsibility for seeing that the customer has received the right goods and that they are in good condition. At the end of the day, the total time worked is recorded along with the deliveries made, and the driver makes sure that his truck will be in good condition for the next day's run.

TRAINING AND REQUIREMENTS

Because he drives on busy streets, in narrow alleys, and into tight parking spaces, any man who drives a truck in city or town must be a skilled driver. Other general qualifications for local drivers are that they must be 21 years old, be able to lift heavy objects and be in good health, including good hearing and eyesight. Most employers prefer that the driver have some high school education, but a diploma is not absolutely necessary. Employers usually look for men who are tactful and courteous in working with customers.

An applicant must be able to get a commercial driver's license, and perhaps have some experience in driving a truck. He must be cautious, alert, able to judge distances, and avoid accidents. Employers will give the applicant a driving test to check his driving ability. He may also have to pass a written test and a physical examination. His traffic and police record will be checked.

If on-the-job training is given, it is usually informal. This means the new driver might ride with an experienced driver before he has his own run. However, when special types of equipment are used, more training may be given.

Local truckdrivers work much of the time outdoors. They are subject to nervous strain because they drive in heavy traffic and must meet schedules. Power steering, automatic transmissions and more comfortable seating have helped to lessen the strain, but there is still a lot of heavy lifting. For the most part, this is steady employment. A driver usually works a 40-hour week and makes no overnight runs.

EARNINGS AND WORKING CONDITIONS

As of July, 1964, hourly union pay for local truckdrivers was $3.14. Truckdriver's helpers earned $2.79. Wages will vary in different locations. In New Orleans, local drivers earned $2.52 per hour, and in San Francisco they earned $3.58 per hour in 1964. Wages will also vary depending on the type of trucking service and the size of the truck operated. Most truckdrivers earn extra pay for working overtime. Some drivers work six days a week. Night-time and early morning work are common.

EMPLOYMENT OUTLOOK

A small rise in employment opportunities is expected in this field because of the increase in the amount of freight handled. Drivers are needed by grocery stores, bakeries, gas and oil companies, coal companies, food processors, wholesale companies and construction companies. Some may work for the federal, state or local government, and others may go into business for themselves.

WHERE TO GET MORE INFORMATION

Contact a local trucker's union or the U.S. Employment Service in your area. They will be able to supply further information about available jobs.

Your driver training teacher and school counselor would be people to contact. Visit some trucking companies and talk to some of the drivers and those who manage the business.

SHIPPING
DOORS TO
WESTERN GILLETTE
SEARS
FORD
X74132

WELDERS

Weekly Pay:	$90.00
Type of Work:	Inside or outside; skilled
Education:	High school
Training:	Vocational and on-the-job

Welding is a process of joining separate pieces of metal by applying intense heat. There are many uses of this process that affect daily life. The operation of aircraft, refrigerators and automobiles all depend upon the strength of welded parts.

WHAT THEY DO

There are three basic types of welding: arc, gas and resistance welding.

Arc welders use both hand and machine methods of welding. Gas welders usually join metals by hand operations, but sometimes use automatic and semiautomatic gas welding equipment. Resistance welding is a machine process performed by semiskilled resistance welding operators.

WELDERS

More skill is required for hand welding than for machine methods of welding.

The principal job of the arc and gas welder, using the hand method, is to join the metal edges by directing heat against the metal until it begins to melt. Sometimes additional metal must be added to complete the joint. In arc welding, the heat is produced by electricity. In gas welding, the heat is produced by burning a mixture of gases.

The resistance welder, using the machine method, operates a machine that welds metal parts by bringing them together under heat and pressure. The operator adjusts the controls of the machine, feeds and aligns the work, and removes it after the welding process is completed.

Closely related to welding is oxygen and arc cutting. In cutting, workers cut, trim and shape metal pieces instead of joining them. The cutting is usually done along marked lines or according to a pattern. The cutter may have to know how to read blueprints in order to mark his guidelines for cutting.

TRAINING AND REQUIREMENTS

The training required for hand arc and gas welders, machine resistance operators, and oxygen and arc cutters is different. Generally, it takes several years of training to become a skilled hand arc or gas welder. Resistance welders and oxygen and arc cutters may learn their work in a few weeks of on-the-job training.

For men in the welding trade, manual dexterity is one of the outstanding requirements. Good vision and hand-eye coordination are also necessary requirements.

The best way to prepare for a job as a welder is to take courses in welding methods in a vocational or trade school and then find a job which will give the necessary on-the-job training. A formal apprenticeship is generally not required.

The young man entering the welding trade often starts with simple welding production jobs where the type and thickness of metal, as well as the position of the welding operation, rarely changes.

After serving as a helper to an experienced welder, the worker may advance to the job of Class B welder, a semiskilled job category.

The Class A, or skilled all-round welder, should be able to lay out work from drawings, blueprints or other written specifications. He should have a knowledge of how to weld a number of metals. He should be able to weld all types of joints in flat, vertical, horizontal and overhead positions. Many Class A welders are "combination welders" using both arc and gas welding methods. The Class A welder may be required to pass a qualifying examination.

EARNINGS AND WORKING CONDITIONS

A welder's earnings depend on his level of skill, the industry in which he is employed, the part of the country in which he is working, and whether or not he belongs to a union.

> The hourly wage for welding machine operators ranges from $1.75 to $2.50 per hour. Class B welders earn a little more than welding machine operators and Class A welders about 25% more.

Working conditions include intense heat and glare, and exposure to gases and fumes, but these are helped by safety equipment, such as goggles, safety hoods and fire-resistant clothing.

EMPLOYMENT OUTLOOK

The need for welders will continue. Employment as a welder is available in practically any industry: shipbuilding, structural products, automotive, aircraft, guided missiles, nuclear energy, railroad, radio, television and appliances.

> Employment opportunities for resistance welders, who make up the largest single group of welders, will continue because of the increased use of resistance welding processes in the manufacture of motor vehicles, aircraft and missiles.

The need for hand welders will increase in the metalworking and sheetmetal industries. The construction industry will employ welders in greater numbers as welded steel construction increases.

> The number of jobs for oxygen and arc cutters is expected to increase as the result of the general expansion of metalworking activity.

WHERE TO GET FURTHER INFORMATION

If you are interested in becoming a welder, talk to your school counselor or shop teacher about attending a school where you can begin to learn.

You can also write for more information to:

The American Welding Society
345 East 47th Street
New York, New York 10017

APPENDIX A

GLOSSARY

Students and teachers will find these definitions useful in understanding many of the words and phrases used when discussing occupations. The list does not attempt to explain all the words and phrases in this booklet, and should be used only as a reference.

The list is broken down into six broad categories: (1) Training, (2) Worker Types, (3) Type of Work, (4) Worker Traits, (5) Types of Schools, and (6) General Terms.

TRAINING

1. FORMAL TRAINING - A planned training program of fixed length and content which must be successfully completed before an employee may begin work or advance to a higher level. It is offered by some employers to provide basic instruction in the skills necessary for the job. A policeman is an example of one who receives formal training.

2. INFORMAL TRAINING - On-the-job training in which no fixed procedure is followed. The worker learns the skills of the job as he goes along.

3. ON-THE-JOB TRAINING - A training period in which a worker learns a job while actually employed in that job.

4. WORK-STUDY PROGRAMS - Usually offered by public schools to give the student a chance to complete a high school education and at the same time get actual working experience on a job. A student usually attends school part of the day and works on a job for the rest of the day.

WORKER TYPES

1. APPRENTICE - A worker who has a written agreement with his employer for a specific period of time in order to learn a skilled trade. He learns by actually working on the job and receives wages, with regular increases, while he is learning.

2. JOURNEYMAN - A qualified and skilled worker who has learned his trade. A worker usually prepares himself to become a journeyman by successfully completing an apprenticeship, or otherwise obtaining the necessary skills required. Many journeymen are found in the building trades.

3. HELPER - A worker who does lesser tasks which are part of the more skilled jobs done by experienced workers. These jobs are usually filled by those just starting. Hod carriers and carpenter's helpers are examples of helpers.

4. SPECIALIST - A worker who is an expert in one particular job or part of a job.

TYPE OF WORK

1. BUILDING TRADES - Jobs involved with the construction or repair of homes and other types of buildings. A list of these occupations would include Bricklayers, Carpenters, Electrical Workers, Granite Cutters, Iron Workers, Heavy Equipment Operators, Painters, Plasterers, Plumbers, Sheet-Metal Workers and others.

2. SEMISKILLED OCCUPATIONS - These jobs require limited training and experience. Semiskilled workers usually receive only brief on-the-job training and can learn the duties in a short period of time. Factory Workers and Local Truckdrivers are examples of semiskilled occupations.

3. SKILLED OCCUPATIONS - These jobs require thoroughly trained and experienced workmen. Workers in skilled occupations must have completed special training and be able to meet a basic skill level. Examples of skilled occupations would include Bakers, Carpenters, Automobile Mechanics, Electricians and Plumbers.

4. UNSKILLED OCCUPATIONS - These jobs usually require little special training. They include Gasoline Service Station Attendants, Store Clerks and Building Custodians.

WORKER TRAITS

1. **ABILITY** - The knowledge, skill and training which allow a person to do a job. An individual may have a strong ability in one job area and less ability in another.

2. **APTITUDE** - An ability to learn a special skill, such as the use of tools. Or, an ability to develop a general understanding of a certain subject, such as the correct use of words. A person's aptitudes can be discovered by having him take various kinds of tests.

3. **FINGER DEXTERITY** - The special ability to coordinate the use of the fingers so as to handle small objects like screws, nuts and bolts.

4. **INITIATIVE** - A willingness to begin or originate a new action. The person with initiative takes the first step. He does not wait to be told what to do or when to do it. He is the person who does something beyond what is expected of him.

5. **INTEREST** - A feeling of concern or curiosity which causes a person to learn about something or to discover how something works. Most persons tend to do well on a job which they find personally interesting. For instance, the person who enjoys tinkering with automobile engines will probably find a mechanical occupation satisfying.

6. **MANUAL DEXTERITY** - The ability to coordinate the use of the parts of the body, especially the hands, so that tools may be used with ease and skill.

7. **MECHANICAL APTITUDE** - The ability to understand basic mechanical principles, such as those demonstrated by the lever, the pulley and the inclined plane. It is also the ability to understand the basic principles of how tools work. A person who has high mechanical ability knows how and when to apply these principles.

8. **NUMERICAL APTITUDE** - The ability to acquire the skill to work with numbers. These skills include measuring, counting, figuring and computing.

9. SPATIAL APTITUDE - The special ability to recognize the same object or picture when it is viewed from many different angles, or changed in several ways.

10. VERBAL APTITUDE - A measure of a person's ability to use language. Special verbal aptitudes include understanding the meaning of words, choosing the right word, recognizing the correct spelling, and reading for meaning.

TYPES OF SCHOOLS

1. CORRESPONDENCE SCHOOL - A plan for study in which the course is sent to the student by mail and he does the necessary work at home without the actual presence of the teacher.

2. TECHNICAL SCHOOL - An educational institution which is vocational in objective, technical in subject matter content, and usually provides sufficient training for entrance into an occupation.

3. VOCATIONAL SCHOOL - A school organized for the purpose of offering training in one or more skilled or semiskilled occupations. It is designed to meet the needs of high school students preparing for employment and to provide upgrading or extension courses for those who are employed.

GENERAL TERMS

1. AUTOMATION - A method in which many or all of the processes of production of parts and materials are automatically performed, or controlled by self-operating machinery.

2. LABOR UNION - An association of workers to promote and protect the welfare, interests and rights of the members.

3. MINIMUM WAGE - The smallest amount of money an hourly wage worker may be paid. The minimum wage for many kinds of work is set by Federal law. In many trades, the union regulations govern the minimum wage.

4. OCCUPATION - A person's full-time job or means of earning a living.

APPENDIX B

WHAT WILL MY EARNINGS BE?

Have you thought of how much you will have to earn during a year to buy the things you will need or want to have? Do you know how much it will cost you a year to own a car, to pay your rent and to buy food? Do you know how much money is needed to support a family?

All of the occupations reported in this book show hourly or weekly earnings. The chart on the next page figures for you what your weekly and yearly earnings would be from a given hourly wage, based on a 40-hour work week and a 50-week year. In figuring the weekly wage, the hourly wage has been multiplied by 40 (hours). In figuring the yearly wage, the weekly wage has been multiplied by 50 (weeks).

Weekly and Yearly Earnings Corresponding to Various Hourly Rates

Weekly wage is based on a 40-hour week, and the yearly wage is based on a 50-week year.

Hourly Wage			Weekly Wage			Yearly Wage	
$ 1.00	an hour	equals	$ 40.00	a week	or equals	$ 2000.00	a year
1.25	" "		50.00	" "		2500.00	" "
1.50	" "		60.00	" "		3000.00	" "
1.75	" "		70.00	" "		3500.00	" "
2.00	" "		80.00	" "		4000.00	" "
2.25	" "		90.00	" "		4500.00	" "
2.50	" "		100.00	" "		5000.00	" "
2.75	" "		110.00	" "		5500.00	" "
3.00	" "		120.00	" "		6000.00	" "
3.50	" "		140.00	" "		7000.00	" "
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6.00	" "		240.00	" "		12,000.00	" "
8.00	" "		320.00	" "		16,000.00	" "
9.00	" "		360.00	" "		18,000.00	" "
10.00	" "		400.00	" "		20,000.00	" "
12.50	" "		500.00	" "		25,000.00	" "

APPENDIX C

AVERAGE EARNINGS OF WORKERS IN VARIOUS OCCUPATIONS

With data available today, there is no exact way of finding an average wage for any occupation so it can be compared with other occupations.

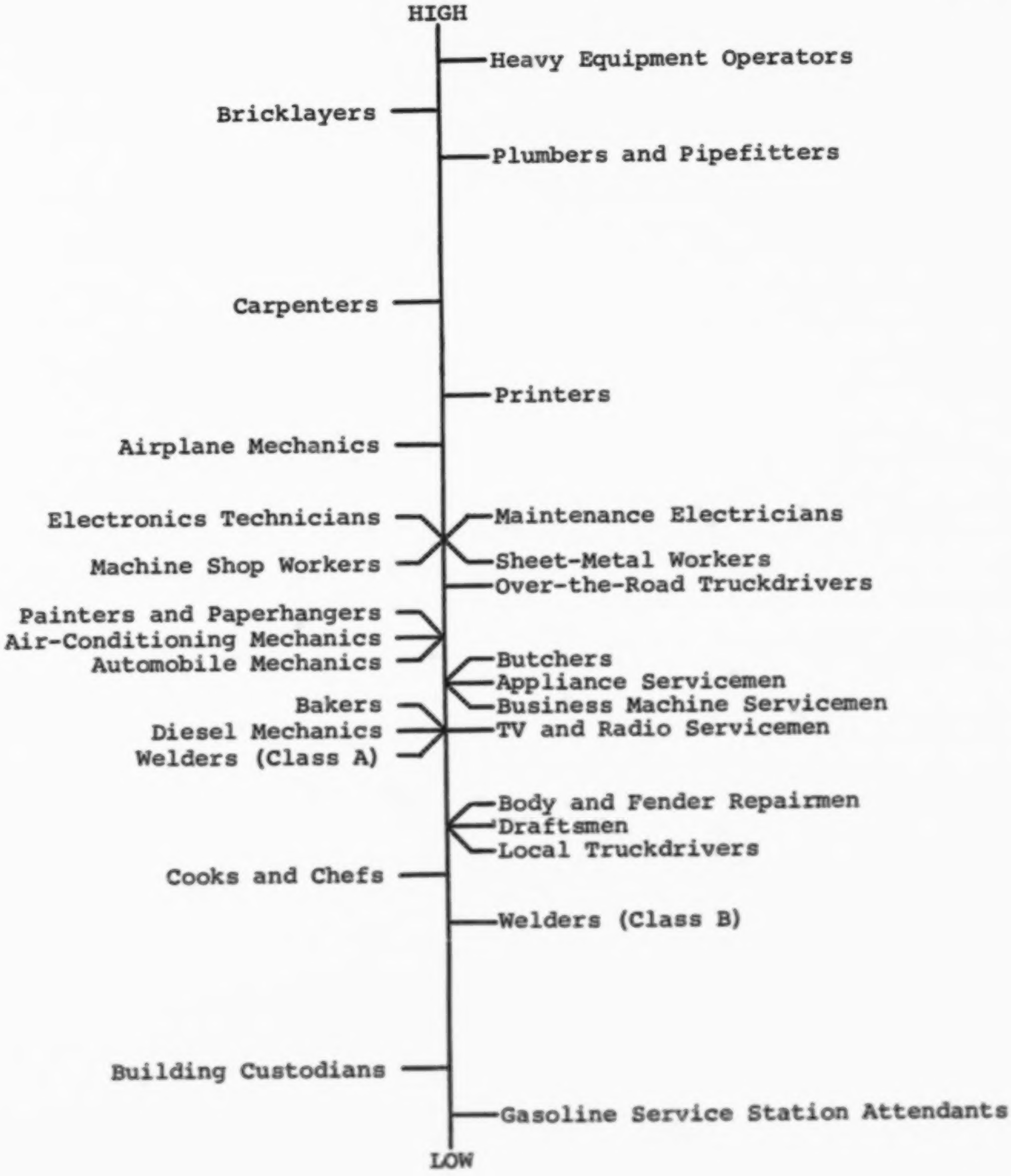
> Many factors are present that do not allow comparison. For example, heavy equipment operators are highly skilled men with many years of experience. Since no apprentices or young workers are employed in this occupation, salaries tend to be higher than in other occupations.

This is not the same for draftsmen. There are four kinds of draftsmen - lead draftsmen, senior draftsmen, junior draftsmen and tracers. Lead draftsmen receive higher salaries than the other draftsmen, yet in terms of years of experience and type of job, they are at about the same skill level as heavy equipment operators. When the salaries of draftsmen are reported, all four categories are included, which makes their average pay seem less than for other occupational groups.

> Some jobs are "entrance occupations," or jobs that can be entered without prior experience. Other jobs reflect a high level of skill, preparation and experience. A third group consists of occupations that include apprentices,

journeymen and master workers.

This graph compares the average earnings of workers in the occupations presented in this book. You can see at a glance how the occupations you are interested in compare with others.



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n. 200. ST 3-6395.

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nce helpful. Must have D.C.
license. DE 2-8500 for appt.

D. MECHANIC—Residential
ear-round wk. Good pay. 524-

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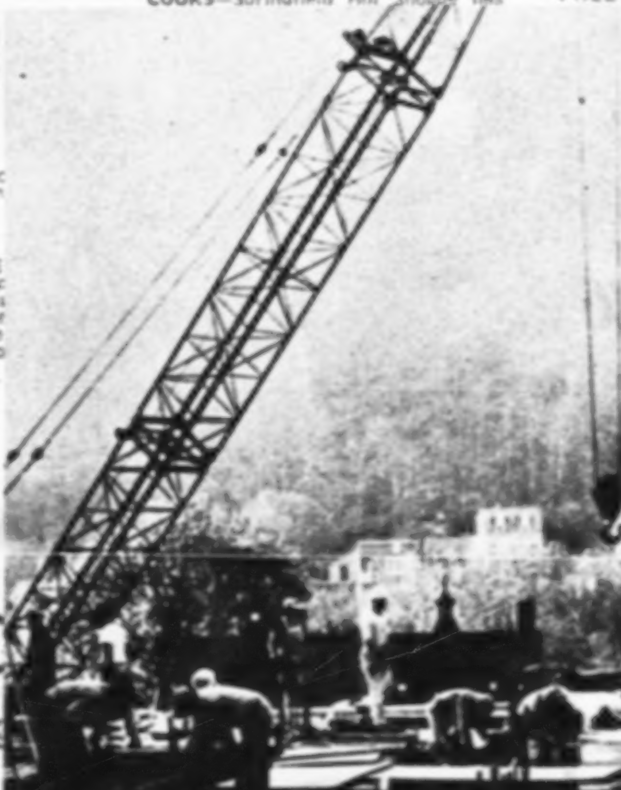

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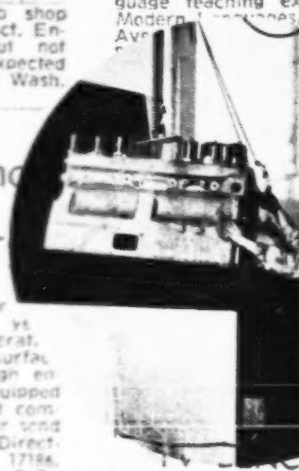

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